



**Voluntary Carbon Standard**

**Project Description**

**Date: 29-March-2010**

**Version: 2.0**

**Table of Contents**

1. *Description of Project:*
2. *VCS Methodology:*
3. *Monitoring:*
4. *GHG Emission Reductions:*
5. *Environmental Impact:*
6. *Stakeholders comments:*
7. *Schedule:*
8. *Ownership:*

*Annexure-1: Location Map*

*Annexure-2: Baseline Information*

*Annexure-3&4: Project Activity Details*

*Annexure 5: Schedule of activities*

## 1 Description of Project:

### 1.1 Project title

33.9 MW Bundled Wind Power project in states of Karnataka and Tamil Nadu

Version: 2.0

Date: 29/03/2010

### 1.2 Type/Category of the project

The project activity involves generation of 33.9 MW by installation of Wind Electric Generators (WEGs) in the states of Karnataka and Tamilnadu. The project will harness the wind resource for electricity generation and will displace the electricity generated from the grid which comprises mainly the thermal generated resource.

The project is part of the Voluntary Carbon Standards, which is a GHG program that has been approved by the VCS Board. Accordingly, under the VCS program, as per the modalities and procedures for large-scale CDM project activities, the type and category of the project activity is as under:

**Sectoral Scope:** 1, Energy industries (renewable/ non-renewable sources)

**Project Category:** ACM0002, Version-10, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”

The project is a **bundled project** activity having two investors. The project involves a total of 19 nos. of WEGs of 1.5 MW each and 9 nos of 0.6 MW each. The investor wise details are provided in Annexure 2 and Annexure 3 of the PD.

#### **Estimated amount of emission reductions over the crediting period including project size:**

The project is estimated to reduce emission reductions equivalent to 81,947 tCO<sub>2</sub>e per year and total of 786,686 tCO<sub>2</sub>e in the crediting period of 1<sup>st</sup> April 2008 to 31-March-2018.

<b>Period</b>	<b>VCUs (tonnes of CO<sub>2</sub>e)</b>
<b>Year 1</b>	<b>49,161<sup>1</sup></b>
<b>Year 2</b>	<b>81,947</b>
<b>Year 3</b>	<b>81,947</b>
<b>Year 4</b>	<b>81,947</b>

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<sup>1</sup>Emission reductions in the first year are less when compared to subsequent years as commissioning dates are different for WEG's.

<b>Year 5</b>	<b>81,947</b>
<b>Year 6</b>	<b>81,947</b>
<b>Year 7</b>	<b>81,947</b>
<b>Year 8</b>	<b>81,947</b>
<b>Year 9</b>	<b>81,947</b>
<b>Year 10</b>	<b>81,947</b>
<b>Total</b>	<b>786,686</b>

The project activity falls in the category “Projects” as the number of emission reductions are in the range of 5000 to 10,000,000.

**A brief description of the project:**

The project under consideration is set up to produce clean power from the wind electric converters. The generated electricity from the project activity is sold to respective State grids under a long term power purchase agreement. The Project leads to reduced greenhouse gas (GHG) emissions because it displaces electricity from fossil fuel based electricity generation plants. The project is helping in bridging the demand supply gap by using wind as a source of generating electrical energy.

The project activity consists of the 19 machines of Suzlon make of 1.5 MW each, and 9 nos of 0.6 MW each totalling to the capacity of 33.9 MW. The Project considered harnessed renewable resources in the region, thereby displacing non-renewable natural resources thereby ultimately leading to sustainable economic and environmental development. Suzlon Energy Ltd is the equipment supplier and the operations and maintenance contractor for the Project.

**Project location including geographic and physical information allowing the unique identification and delineation of the specific extent of the project:**

The project under consideration is located in the states of Karnataka and Tamilnadu. The location map is provided in the Annexure-1.

**Duration of the project activity/crediting period:**

Project Start date: The start date is considered as 30/03/2008, being the date of commissioning of first turbine included in the Bundle.

Crediting period start date: 1<sup>st</sup> April 2008

VCS Project crediting period: The project proponent has chosen renewable crediting period. The first renewable crediting period for the project activity is considered for the period of 10 years from 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2018<sup>2</sup>. The project proponents are undertaking the same project activity under CDM however VCU's shall be claimed by PP's only till the day before the date of registration of the project in CDM under UNFCCC.

### **Conditions prior to project initiation:**

The project activity is located in the Southern grid which is dominated by fossil fuel fired thermal power stations. The grid is also doomed by power deficit and hence the addition of renewable wind energy generation will help in the sustaining and catering to the power demand.

The electricity generated from the wind power project will be sold to the respective state grids under a long term power purchase agreement. The wind power project generates electricity and will replace the electricity that would otherwise have been generated by other grid connected power stations and by addition of new generating stations.

India has two regional grids i.e. NEWNE (North, Eastern, Western and North-Eastern) and Southern grid. The project is located in the southern region and hence the baseline for the project activity will be emissions that would have occurred by the operation of grid connected power stations and by the addition of new generating stations. The detail of the baseline calculation is provided in the section 4.1 of the PD.

### **A description of how the project will achieve GHG emission reductions and/or removal enhancements:**

The Project is wind based renewable energy source, zero emission power project connected to the Karnataka and Tamil Nadu state grids, which forms part of the Southern regional electricity grid. The Project will displace fossil fuel based electricity generation that would have otherwise been provided by the operation and expansion of the fossil fuel based power plants in Southern regional electricity grid.

### **Project technologies, products, services and the expected level of activity:**

#### **Technical specifications of Suzlon S 52/600kW**

##### **Rotor**

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<sup>2</sup> In case of registration of project with UNFCCC before 31<sup>st</sup> March 2018, the day before CDM registration shall be the last date of the VCS crediting period, else the VCS crediting period will be as mentioned in section 1.3.

Diameter	52 m
No of Rotor Blade	3
Orientation	Upwind/Horizontal axis
Rotation Direction	Clockwise
Rotor Blade Material	GRP
Swept are	2124 m <sup>2</sup>
Hub height	75 m
Regulation	Pitch regulated

**Operation Data**

Cut in wind speed	3.5 m/sec
Rated wind speed	12 m/sec
Cut off wind speed	24 m/sec

**Gear Box**

Type	Integrated 3 stage- 1 planetary and 2 helical
Gear ratio	1:63.633
Manufacturer	Winergy
Nominal load	660 kW
Type of cooling	Oil cooling system, Forced lubrication

**Generator**

Type	Asynchronous 4 pole
Rotation speed	1500 RPM
Rated Output	600 kW
Rated Voltage	690 V
Frequency	0 Hz
Insulation	Class "H"
Enclosure Class	IP 56
Cooling system	Air cooled

**Operating Brakes**

Aerodynamic brake                      3 independent system with blade pitching  
 Bearing type                              Polyamide slide bearing

**Safety Systems**

1. Brake system                              Automatic application by synchronous hydraulic control of the blade pitching in case of

Vibration or shocking loading

Over temperature of the gearbox or generator failure of thyristors & control in the case of excessive wind speed

Variation in the rated voltage range

Variation in the frequency range

Asymmetric phasing

Line interruption with automatic reconnection

2. Brake system                              spring applied hydraulically released disk brake

**Tower**

Type    Free standing, Lattice tower, hot dip galvanised

Tower height                                  to suit hub height

Construction                                  Bolted

Erection    With crane

Design    GL special class

**Technical specifications of Suzlon S 82/1500kW**

**Rotor**

Diameter    82 m

Installed electrical output                  1500 kW

Cut-in wind speed                              4 m/sec

Cut out wind speed                              20 m/sec

Rotor swept area                                  5281 m<sup>2</sup>

Rotational speed                                  15.6/18.4 rpm

Rotor material                                  Fibre Glass/ Epoxy

Regulations    Pitch/ Suzlon Flexislip System

**Gear Box**

Type	Integrated 3 stage- 1 planetary and 2 helical
Gear ratio	1:95.09
Manufacturer	Winergy
Nominal load	1650 kW
Type of cooling	Oil cooling system

**Yaw drive system** 4 active electrical yaw motors

Yaw bearing Polamide slide bearing

**Safety system**

Aerodynamic brake 3 times independent pitch regulated

Mechanical brake Spring powered disc brake, hydraulically released fail safe

Control unit Microprocessor controlled, indicating actual operating conditions, UPS backup system

**Generator**

Type	Asynchronous Generator 4 pole
Rotation speed	1511 RPM
Rated Output	1500 kW
Rated Voltage	690 V
Frequency	50 Hz
Protection	IP 54
Insulation	Class "H"
Cooling system	Air cooled

**Design standards** As per GL/IEC

No technology transfer from other countries is involved in this project

The technical life of the project activity is 20 years and the project is expected to generate 86,735 MWh per annum.

**Compliance with relevant local laws and regulations related to the project:**

Renewable energy projects are not mandated in India by any enforced law or other regulatory framework. However, for guidance on voluntary wind energy based electricity generation, there are policies introduced/incentives declared by the state governments. These policies have been considered for the project activity and are available at <http://www.windpowerindia.com/govtinc.html> .

For the implementation of the project activity, the project participants has obtained land lease deeds/sale deeds and has secured TNEB & KPTCL clearance for commissioning of the WEGs in the states of Tamilnadu & Karnataka respectively.

**Identification of risks that may substantially affect the project's GHG emission reductions or removal enhancements:**

The risks that may affect the project's GHG emission reductions are given below:

Wind electricity generation is risky and unpredictable due to the variability involved in wind resources as well as its forecasting. This variability is due to the variability in the wind speed and wind pattern, which in turn depends on weather cycle, climatic conditions, etc.

The project is dependent on the utility provider for grid availability. If there is a grid failure, the project will be unable to supply the generated electricity to the grid.

**Demonstration to confirm that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.**

The project activity is primarily a renewable power generation facility which does not emit any kind of GHG emissions. Hence the project activity has not been implemented to create GHG emissions for the purpose of the subsequent removal or destruction of GHG emissions.

**Demonstration that the project has not created another form of environmental credit (for example renewable energy Certificates).**

The project has not created another form of environmental credit in the given crediting period (10 years from 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2018). A letter from the project proponent will be submitted to the validator to demonstrate that the project has not created another form of environmental credit. As per the regulations announced by CERC dated 14/012010 Renewable Energy Certificates<sup>3</sup> are not applicable to the project activity as PPA is already in place. In case if any amendment to these regulations comes into force in future where in the project activity is eligible to claim REC's the PP states that it won't avail any Renewable Energy Certificates (REC's) for the period during which VER's are claimed for the project activity.

**Project rejected under other GHG programs (if applicable):**

Not applicable.

**Project proponents roles and responsibilities, including contact information of**

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<sup>3</sup> [http://cercind.gov.in/Regulations/CERC\\_Regulation\\_on\\_Renewable\\_Energy\\_Certificates\\_REC.pdf](http://cercind.gov.in/Regulations/CERC_Regulation_on_Renewable_Energy_Certificates_REC.pdf)

**the project proponent, other project participants:**

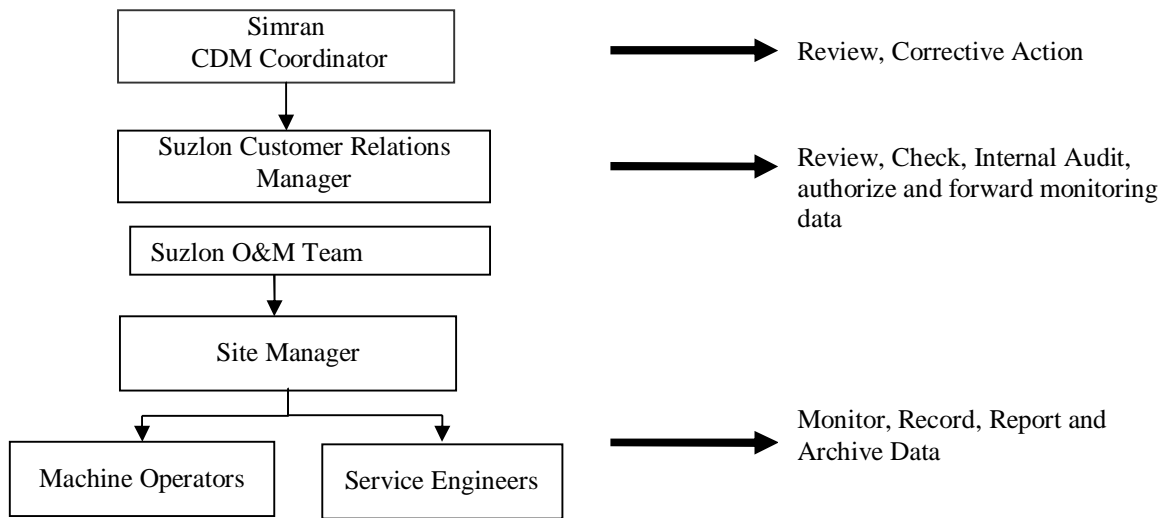
Simran Wind Project Private Ltd (“herein referred as Simran”) is the Lead project proponent for this activity and has been duly authorized to take up the said project activity for VCS development. Simran Wind Project Private Ltd will be responsible for all the communications and actions in relation to the project being validated in accordance with the VCS standard.

Organization:	Simran Wind Project Private Ltd
Street/P.O.Box:	71 Park Street
Building:	2F Park Plaza
City:	Kolkata
State/Region:	West Bengal
Postfix/ZIP:	700016
Country:	India
Telephone:	+91-33-3021 3000 / 3110
FAX:	+91-33-22171167
E-Mail:	<a href="mailto:sanranand@gmail.com">sanranand@gmail.com</a>
URL:	
Represented by:	
Title:	
Salutation:	Mr.
Last Name:	Roy
Middle Name:	Nath
First Name:	Samarendra
Department:	Corporate
Mobile:	
Direct FAX:	+91-33-22171167
Direct tel:	+91-33-3021 3000 / 3110
Personal E-Mail:	<a href="mailto:sanranand@gmail.com">sanranand@gmail.com</a>

**Roles and Responsibility:**

The daily generation report received from Suzlon(Customer Relations Manager) will be compiled by the PP for the entire month and the same will be cross checked against the credit notes received from the Discom for any discrepancies.

The operational and management structure implemented by Simran along with Suzlon as follows



**Any information relevant for the eligibility of the project and quantification of emission reductions or removal enhancements, including legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and temporal information):**

**Eligibility of the project**

The eligibility and applicability of the methodology is detailed in section 2.2 of the PD.

**Quantification of Emission Reductions**

Estimated amount of emission reduction for crediting period of 10 years

<b>Years</b>	<b>Annual estimation of emission reductions in tonnes of CO<sub>2</sub>e</b>
Year 1	<b>49,161</b>
Year 2	<b>81,947</b>
Year 3	<b>81,947</b>
Year 4	<b>81,947</b>

Year 5	<b>81,947</b>
Year 6	<b>81,947</b>
Year 7	<b>81,947</b>
Year 8	<b>81,947</b>
Year 9	<b>81,947</b>
Year 10	<b>81,947</b>
Total estimated reductions (tonnes of CO <sub>2</sub> e)	<b>786,686</b>
Total number of crediting years	<b>10</b>
Annual average over the crediting period of estimated reductions (tonnes of CO <sub>2</sub> e)	<b>78,669</b>

### **Legislative**

There is no legal or regulatory requirement for setting wind power projects.

### **Technical**

Increased interest in wind energy projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future

### **Economic**

The project activity requires temporary and permanent, skilled and semi-skilled manpower at the wind park; this will create additional employment opportunities.

The generated electricity will be fed into the southern regional grid through local grid, thereby improving the grid frequency and availability of electricity to the local consumers (villagers & sub-urban habitants) which will provide new opportunities for industries and economic activities to be setup in the area thereby resulting in greater local employment, ultimately leading to overall development.

### **Sectoral**

The project activity falls in the Sectoral Scope 1, Energy Industries (Renewable/Non-Renewable Sector).

The project activity is Greenfield renewable grid connected generation facility that will displace electricity from grid connected generating stations.

**Social**

The project activity has led to the development of supporting infrastructure such as road network etc., in the wind park location, which also provides access to the local population.

Use of a renewable source of energy reduces the dependence on imported fossil fuels variation thereby leading increased energy security.

**Environmental**

The project activity involves use of renewable energy source for electricity generation instead of fossil fuel based electricity generation, thereby reducing emission reductions.

Being a renewable resource, using wind energy to generate electricity contributes to resource conservation. Thus the project causes no negative impact on the surrounding environment contributing to environmental well being.

**Geographic and Site-Specific**

Geographic location is detailed in Annexure - 1 of the PD

**List of commercially sensitive information (if applicable):**

The documents that we have provided to the DoE do not contain commercially sensitive information.

**VCS Methodology:**

**Title and reference of the VCS methodology applied to the project activity and explanation of methodology choices:**

**Sectoral Scope:** 1, Energy industries (renewable/ non-renewable sources)

**Project Category:** ACM0002, Version-10, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”

*The tools referenced in this methodology are:*

Tool to calculate the emission factor for an electricity system, version 02 (<http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.pdf>).

CDM Tool for demonstration and assessment of additionality version 5.2.

**Justification of the choice of the methodology and why it is applicable to the project activity:**

The approved consolidated baseline and monitoring methodology ACM 0002, Version 10 is the choice of the baseline and monitoring methodology and it is applicable because:

<b>S. No</b>	<b>Applicability conditions of ACM0002</b>	<b>Project Under Consideration</b>
	<p>The methodology is applicable under the following conditions:</p> <ul style="list-style-type: none"> <li>• The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;</li> </ul>	<p>The project installs a new wind power project at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant).</p>
	<ul style="list-style-type: none"> <li>• In the case of capacity additions, retrofits or replacements: the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;</li> </ul>	<p>The Project is a green field project that represents electricity generation from a new wind generating machines and is not a capacity add-on or replacement/retrofit to an existing facility</p>
	<p>In case of hydro power plants, one of the following conditions must apply:  The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or  The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m<sup>2</sup>; or  The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m<sup>2</sup>.</p>	<p>The project activity is a green field bundled wind power project hence these are not applicable.</p>
	<p>The methodology is not applicable to the following:  Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;  Biomass fired power plants;  Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m<sup>2</sup>.</p>	<p>The Project does not involve switching from fossil fuel to renewable energy at the site of project activity since the Project is green-field electricity generation capacities from wind sources at sites where there was no electricity generation source prior to the Project and thus there is not capacity</p>

		add-on or replacement/retrofit
	In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The Project is a green field project that represents electricity generation from a new wind generating machines and is not a capacity add-on or replacement/retrofit to an existing facility
	Tools referred	This methodology also refers to the latest approved versions of the following tools: <ul style="list-style-type: none"> <li>• ACM0002, Version-10, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.</li> <li>• CDM Tool for demonstration and assessment of additionality version 5.2.</li> <li>• Tool to calculate the emission factor for an electricity system, version 02</li> </ul>

The details above justify the applicability of ACM0002 for this project.

**Identifying GHG sources, sinks and reservoirs for the baseline scenario and for the project:**

We have applied approved methodology ACM0002 to the project activity. As per ACM0002, the PP is required to list only the GHG sources. The listing of GHG sinks and reservoirs is not required as per the applied methodology.

	Source	Gas	Included?	Justification/Explanation
<b>Baseline</b>	Grid-connected electricity	CO <sub>2</sub>	Yes	In the baseline scenario the electricity would have been sourced from the Southern grid which would have been generated from grid connected power

	generation			plants
		CH <sub>4</sub>	No	No methane generation is expected to be emitted
		N <sub>2</sub> O	No	No nitrous oxide generation is expected to be emitted
<b>Project Activity</b>	Greenfield wind energy conversion system	CO <sub>2</sub>	No	The project activity does not emit any emissions
		CH <sub>4</sub>	No	No methane generation is expected to be emitted
		<b>N<sub>2</sub>O</b>	<b>No</b>	No nitrous oxide generation is expected to be emitted.

**Description of how the baseline scenario is identified and description of the identified baseline scenario:**

According to ACM0002, for project activities that do not modify or retrofit an existing electricity generation facility, the baseline scenario is the following:

Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described below.

As the Project does not modify or retrofit an existing generation facility, the baseline scenario is the generation by the operation of grid-connected power plants and by the addition of new generation sources. This is estimated using calculation of Combined Margin multiplied by electricity delivered to the grid by the Project.

<b>Variable</b>	<b>Data Source</b>
EG <sub>Pt,y</sub> – Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year <i>y</i> (MWh/yr)	Records maintained by project proponent
Parameter	Data Source
EF <sub>grid,OM,y</sub> -Build margin CO <sub>2</sub> emission factor for the project electricity system in year <i>y</i> (tCO <sub>2</sub> /MWh)	CEA Database for CO <sub>2</sub> emissions, version 05
EF <sub>grid,BM,y</sub> - Build margin CO <sub>2</sub> emission factor	CEA Database for CO <sub>2</sub> emissions,

for the project electricity system in year y (tCO <sub>2</sub> /MWh)	version 05
EF <sub>grid,CM,y</sub> - Combined margin CO <sub>2</sub> emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin and build margin

**Description of how the emissions of GHG by source in baseline scenario are reduced below those that would have occurred in the absence of the project activity (assessment and demonstration of additionality):**

The latest additionality tool i.e. Tool for the demonstration and assessment of additionality version 05.2 approved by CDM Executive Board in its 39th meeting is used to demonstrate project additionality.

***Step 1. Identification of alternatives to the project activity consistent with current laws and regulations***

***Sub-step 1a: Define alternatives to the project activity:***

**Alternative 1: Implementation of the project without carbon revenues**

Under this alternative, the project participants would have gone ahead with the implementation of the project without carbon benefits. The project would have produced electricity from the renewable source and the generating electricity would have been sold to the respective grids under a power purchase agreement. This is in compliance with all applicable legal and regulatory requirements and can be a part of the baseline. However, the project activity is not viable enough without carbon revenues. This argument has been discussed in step 2 of the Additionality section.

**Alternative 2: No project activity**

The project proponent would have continued without investment in project and would have continued with usual business activities. The equivalent capacity additions in the grid would have continued by a fossil fuel based power plant and thus there would also be the associated GHG emissions from the fossil fuel based power plant. Thus new capacity add-on from a fossil fuel based power plant is the most plausible baseline alternative for the project.

Super and Simran Wind Power Projects Pvt Ltd are Independent Power Producers investing only in Wind Projects and thus coal fired power stations, natural gas, biomass and hydro power projects are not the alternatives<sup>4</sup>.

**Outcome of step 1 a:**

Alternatives 1 & 2, as identified above are realistic and credible alternatives to the project activity.

*Sub-step 1b: Consistency with mandatory laws and regulations:*

All the 2 alternatives are consistent with the mandatory laws and regulations of India

Outcome of Sub-step 1b

“No project activity”, wherein the equivalent amount of electricity is produced by addition of a fossil fuel based generating plants, is considered as the baseline

*Step 2: Investment analysis*

*Determine whether the proposed project activity is not:*

- (a) The most economically or financially attractive; or*
- (b) Economically or financially feasible, without the revenue from the sale of carbon credits.*

The project proponent chose to use point (b) above

<b>Sub Steps</b>	<b>Tool Guidelines</b>	<b>Submissions in favor of additionality</b>
Sub-step 2a. - Determine appropriate analysis method	Determine whether to apply simple cost analysis, investment comparison analysis or benchmark analysis (sub-step 2b).	The project generates electricity which is being sold to respective grids. Thus the project generates economic benefits from the sale of power

<sup>4</sup> Refer to footnote no. 4 in “Tool for the demonstration and assessment of additionality” <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v5.2.pdf>

	<p>If the CDM project activity generates no financial or economic benefits other than CDM related income, then apply the simple cost analysis (Option I).</p> <p>Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III).</p>	<p>The other possible revenue stream for the project is through trading of GHG emission reductions in Annex-1 countries.</p> <p>Thus Option-1 is not applicable for this project and Option-II or Option-III should be used.</p>
<p>Sub-step 2b. – Option II. Apply investment comparison analysis</p>	<p>Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service (e.g., levelized cost of electricity production in \$/kWh or levelized cost of delivered heat in \$/GJ) most suitable for the project type and decision-making context.</p>	<p>Project proponent chooses to exercise option-III i.e. Benchmark analysis.</p>
<p>Sub-step 2b. – Option III. Apply benchmark analysis</p>	<p>Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service (e.g., levelized cost of electricity production in \$/kWh or levelized cost of delivered heat in \$/GJ) most suitable for the project type and decision context.</p>	<p>There are various benchmarks available for the power sector investment issued by banking institutions and regulatory commissions for fixation of tariff for the specific states.</p>

***Sub-step 2b. – Option III. Apply benchmark analysis***

A suitable financial indicator, **post tax project IRR** has been identified to demonstrate the investment barriers faced by the project. The post tax IRR of the project has been compared with the local commercial lending rates prevailing during the time of investment.

**Suitability of the Benchmark used for Comparison:**

The guidance to investment analysis issued in EB 51 (paragraph 12) states that in cases where a benchmark approach is used, the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates are appropriate benchmarks for the project IRR. Required/expected returns on equity are appropriate benchmarks for equity IRR.

The tool for demonstration and assessment of additionality [para-5, sub step 2(b)] states that in cases where the project has more than one potential developer, the benchmark shall be based on parameters that are standard in the market, considering the specific characteristics of the project type. Accordingly, local commercial lending rates applicable to the project type have been considered as the benchmark and thus we have considered the Prime Lending Rate (PLR) of five major banks in India as published by RBI as the appropriate benchmark.

Purchase Orders were placed in the months of May, August & September 2007 .The PLR, are the same for the 3 months and thus we have considered 13 % as the appropriate benchmark. Please refer to the benchmark excel sheet.

***Sub-step 2c. Calculation and comparison of financial indicators (only applicable to options II and III):***

Calculate the suitable financial indicator for the proposed CDM project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CDM revenues, but including subsidies/fiscal incentives where applicable), and, as appropriate, non-market cost and benefits in the case of public investors.

Present the investment analysis in a transparent manner and provide all the relevant assumptions in the CDM-PDD, so that a reader can reproduce the analysis and obtain the same results. Clearly present critical techno-economic parameters and assumptions (such as capital costs, fuel prices, lifetimes, and discount rate or cost of capital). Justify and/or cite assumptions in a manner that can be validated by the DOE. In calculating the financial indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions (e.g. insurance premiums can be used in the calculation to reflect specific risk equivalents).

Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.

Present in the CDM-PDD submitted for validation a clear comparison of the financial indicator for the proposed CDM activity and:

The alternatives, if Option II (investment comparison analysis) is used. If one of the other alternatives has the best indicator (e.g. highest IRR), then the CDM project activity can not be considered as the most financially attractive;

The financial benchmark, if Option III (benchmark analysis) is used. If the CDM project activity has a less favourable indicator (e.g. lower IRR) than the benchmark, then the CDM project activity cannot be considered as financially attractive.

The financial calculations are based on the following assumptions <b>Parameter</b>	<b>Source</b>
PLF	Respective Purchase orders
O&M and Escalation	Respective Purchase Orders
Insurance	TERC tariff order dated 18 May 2005 <sup>5</sup> & KERC tariff order dated 18 January 2005 <sup>6</sup>
Project Cost	Purchase Orders
Debt :Equity	TERC tariff order dated 18 May 2005 & KERC tariff order dated 18 January 2005
Interest rate , Moratorium & Tenure	TERC tariff order dated 18 May 2005 & KERC tariff order dated 18 January 2005
Tariff	TERC tariff order dated 18 May 2005 & KERC tariff order dated 18 January 2005

<sup>5</sup> <http://tnerc.tn.nic.in/orders/NCESamend.pdf>

<sup>6</sup> [http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20\(FINAL\).doc](http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc)

Accelerated Depreciation rates	Accelerated Depreciation as per Indian Income Tax Act - taxclubindia.com/simple/depincometax.rtf Please refer to point no. A»8»xiii»l
Book Depreciation	Companies Act, 1956, Schedule XIV ( <a href="http://www.mca.gov.in/Ministry/latestnews/Explanatory_Statement_alongwith_Schedule_XIV_4dec2008.pdf">http://www.mca.gov.in/Ministry/latestnews/Explanatory_Statement_alongwith_Schedule_XIV_4dec2008.pdf</a> . Please refer to page 4“General rate applicable to PLANT AND MACHINERY”.)
Income Tax Rate	IT Act ( <a href="http://www.incometaxindiapr.gov.in/incometaxindiacr/contents/taxrates/taxrates_2008_09_cos.htm">http://www.incometaxindiapr.gov.in/incometaxindiacr/contents/taxrates/taxrates_2008_09_cos.htm</a> )
Baseline Emission factor	CEA Database Ver 5.0 <a href="http://www.cea.nic.in/planning/c%20and%20e/database_publishing_ver5.zip">http://www.cea.nic.in/planning/c%20and%20e/database_publishing_ver5.zip</a>

For detailed assumptions refer to the respective Investment Analysis Excel sheets

Type of Project	Capacity(MW)	IRR(%)
Simran - Karnataka	6	8.80
Super – Karnataka	12	10.20
Simran - Tamilnadu	15.9	6.59

Please refer to the excel sheet for project wise IRR calculations.

### Sensitivity analysis on Generation

It is expected that there could be a possible 10% generation difference (on the higher side) during the normal operational life of the project. Thus sensitivity analysis has been carried out to check the robustness of the financial model. The financial model has been developed on the basis of PLF taken from Suzlon PO

The below calculations are without consideration of carbon revenues.

Project	PLF (%)	Post tax project IRR without carbon revenues
Simran - Karnataka	28.92	8.80
	31.81(+10%)	10.32
	26.03(-10%)	7.18

Super – Karnataka	28.92	10.20
	31.81(+10%)	11.78
	26.03(-10%)	8.51
Simran - Tamilnadu	29.53	6.59
	32.49(+10%)	8.00
	26.55(-10%)	5.06

### Sensitivity analysis on Tariff

Project	Tariff	Post tax project IRR without carbon revenues
Simran - Karnataka	3.4	8.80
	3.74(10%)	10.32
	3.06(-10%)	7.19
Super – Karnataka	3.4	10.20
	3.74(10%)	11.78
	3.06(-10%)	8.51
Simran - Tamilnadu	2.9	6.59
	3.19(+10%)	8.00
	2.61(-10%)	5.08

Sensitivity analysis has been carried out for the projects located in Karnataka as well as Tamilnadu. It is evident from above table that even after a 10 % variation in the tariff the IRR of the projects located in Karnataka is well below the benchmark IRR. The tariff incase of Karnataka Projects is going to remain fixed as INR 3.4 for the next 20 years. However incase of Tamilnadu the IRR of the project at the prevailing tariff of INR 3.39 is 8.93 % which is well below the benchmark IRR and it is found that IRR of the project is differing from benchmark tariff at the tariff of INR 4.33 i.e. at 48 % variation from the base tariff of INR 2.9.

As can be seen from the above, the project IRR generated by the project, without carbon revenues, is lower than the benchmark rate of 13% even with a 10% increase in generation as well as with a 10% increase in Tariff. The project IRR improves after carbon revenues are considered, therefore only the carbon revenues would improve the commercial attractiveness of the project activity.

***Outcome of Step 2:***

The sensitivity analysis proves that the project is financially not attractive without carbon revenues.

***Step 3: Barrier Analysis***

Skipped as step 2 proves the financial non-attractiveness of the project without carbon revenues.

***Sub-step 4a. Analyze other activities similar to the proposed project activity:***

Provide an analysis of any other activities implemented previously or currently underway that are similar to the proposed project activity. Projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. Other CDM project activities are not to be included in this analysis. Provide quantitative information where relevant

**Common Practise analysis for Tamilnadu Projects:**

The activities similar to the proposed activity are projects with installed capacity more than 15 MW in Tamil Nadu. 15 MW is chosen because of the plethora of smaller installations below 15 MW capacities. The risks associated with larger installations are more complex and huge as compared to smaller ones. The wind tariff and other regulations concerning installations are given by different state regulatory commissions in India. As the proposed project is in the state of Tamil Nadu, the common practice is thus restricted to the state of Tamil Nadu.

The total installed capacity in Tamil Nadu, as on March 2008<sup>7</sup>, was 3873.5 MW. The list of developers who have more than 15 MW installed capacity, out of the 3873.5 MW, is (The list below is sourced from all the publically available data

Data on VCS project is taken from <https://vcsregistry1.apx.com/myModule/rpt/myrpt.asp?r=111>

India Wind power directory, 2008

<b>Developer</b>	<b>Installed Capacity</b>	<b>States</b>	<b>Remarks</b>	<b>Data source</b>
Aban Loyd Chiles O. Ltd.	65.985	Tamil Nadu	Commissioned before 2001	
NEPC Micon	43.850	Tamil Nadu	Manufacturer	

<sup>7</sup> <http://www.windpowerindia.com/statyear.html>

## VCS Project Description Template

Developer	Installed Capacity	States	Remarks	Data source
Madras Cement Ltd.	41.6	Tamil Nadu, Karnataka	Under validation	<a href="http://cdm.unfccc.int/Projects/Validation/DB/AOLO0C51SE7IUL19FP3B27HORLRSK0/view.html">http://cdm.unfccc.int/Projects/Validation/DB/AOLO0C51SE7IUL19FP3B27HORLRSK0/view.html</a>
Mohan Breweries & Distilleries	53.25	Tamil Nadu	Installations prior to September 2001.	<a href="http://www.windpowermonthly.com/news/login/951697/">http://www.windpowermonthly.com/news/login/951697/</a>
Vishal Export Overseas Ltd	39.225	Rajasthan and TN	2 projects in Rajasthan under validation. All the installations were envisaged to be CDM projects as reported publicly <a href="http://www.projectsmonitor.com/detailnews.asp?newsid=9284">http://www.projectsmonitor.com/detailnews.asp?newsid=9284</a> as well as in the company's annual report Page 18 <a href="http://vishalexports.co.in/annual%20reports/Annual%20Report-2005-06.pdf">http://vishalexports.co.in/annual%20reports/Annual%20Report-2005-06.pdf</a> .	
Soundararaja Mills Ltd.	40.68	Tamil Nadu	No further information	<a href="http://cdm.unfccc.int/Projects/Validation/DB/1VD4I971NMFAB70C0LGFR01GV4RI4H/view.html">http://cdm.unfccc.int/Projects/Validation/DB/1VD4I971NMFAB70C0LGFR01GV4RI4H/view.html</a>
KPR Mill Pvt. Ltd.	33.17	Tamil Nadu	CDM project	<a href="http://cdm.unfccc.int/Projects/Validation/DB/KBAXDG75UAPOH4J4P20YB2AIQKM36G/view.html">http://cdm.unfccc.int/Projects/Validation/DB/KBAXDG75UAPOH4J4P20YB2AIQKM36G/view.html</a>
Ashok Leyland Fin. Ltd	56.25	Tamil Nadu	Registered project	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/8KO36GD8IQVNDMHID2WIFNYHCE9JA2">http://cdm.unfccc.int/UserManagement/FileStorage/8KO36GD8IQVNDMHID2WIFNYHCE9JA2</a>
Tamilnadu Newsprint & Paper Ltd	28	Tamil Nadu	Expanding wind farm as proved by the news report. 6.75 MW under validation as proved by the uploaded PDD on UNFCCC website	<a href="http://www.thehindubusinessline.com/2005/08/24/stories/2005082402740200.htm">http://www.thehindubusinessline.com/2005/08/24/stories/2005082402740200.htm</a> , <a href="http://cdm.unfccc.int/Projects/Validation/DB/QIJV59ENWGKVMRV8VFVC7SDNJTCHM6/view.html">http://cdm.unfccc.int/Projects/Validation/DB/QIJV59ENWGKVMRV8VFVC7SDNJTCHM6/view.html</a>
Lakshmi Machine	27.95	Tamil Nadu	Under validation	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/7LXZLFECVXR5YBOJ5">http://cdm.unfccc.int/UserManagement/FileStorage/7LXZLFECVXR5YBOJ5</a>

VCS Project Description Template

<b>Developer</b>	<b>Installed Capacity</b>	<b>States</b>	<b>Remarks</b>	<b>Data source</b>
Works				TH8J6XNHIPOCN
Shanmugavel Group	25.5	Tamil Nadu	One of the participant in the bundled project	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG">http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG</a>
Best & Co.	25	Tamil Nadu	One of the participant in the bundled project	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG">http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG</a>
Grace Infrastructure (P) Ltd.	31	Tamil Nadu	Under Validation	<a href="http://cdm.unfccc.int/Projects/Validation/DB/FFZD3FVFDVCBV7VFLEO18LOFADFR7Z/view.html">http://cdm.unfccc.int/Projects/Validation/DB/FFZD3FVFDVCBV7VFLEO18LOFADFR7Z/view.html</a>
Premier Fine Yarns Pvt. Ltd.	29.7	Tamil Nadu	Under CDM- host country approval obtained	<a href="http://cdmindia.nic.in/cdmindia/projects/PCN_141_06.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_141_06.pdf</a>
TCS Textiles Ltd.	20.750	Tamil Nadu	One of the participant in the bundled project	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG">http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG</a>
Loyal Textile Mills Ltd	22.250	Tamil Nadu	Under validation	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/TPAONMX73CHPZ69AQ5CSP9BI1UKU99">http://cdm.unfccc.int/UserManagement/FileStorage/TPAONMX73CHPZ69AQ5CSP9BI1UKU99</a>
CPCL	17.6	Tamil Nadu	Under validation	<a href="http://cdm.unfccc.int/Projects/Validation/DB/178HZLVK21QHH5Y3SZI88Q1O865IMB/view.html">http://cdm.unfccc.int/Projects/Validation/DB/178HZLVK21QHH5Y3SZI88Q1O865IMB/view.html</a>
Suzlon Infrastructure Limited	17.5	Tamil Nadu	Registered project	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/512/PDD%2023.75MW%20grid%20connected%20electricity%20generation%20project%20at%20Tirunelveli%20in%20Tamil%20Nadu..pdf">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/512/PDD%2023.75MW%20grid%20connected%20electricity%20generation%20project%20at%20Tirunelveli%20in%20Tamil%20Nadu..pdf</a> , <a href="http://cdm.unfccc.int/UserManagement/FileStorage/TW7B0AWSBQH8PMNM8WFW5QE5I9546">http://cdm.unfccc.int/UserManagement/FileStorage/TW7B0AWSBQH8PMNM8WFW5QE5I9546</a>
Chettinad Cement Corp	17.35	Tamil Nadu	Project commissioned before 1996 march	

## VCS Project Description Template

Developer	Installed Capacity	States	Remarks	Data source
Arvind A Traders	16.85	Tamil Nadu	One of the participant in the bundled project	<a href="http://cdm.unfccc.int/Projects/DB/DNV-CUK1174976416.26/view">http://cdm.unfccc.int/Projects/DB/DNV-CUK1174976416.26/view</a>
Dalmia Cements (B) Ltd	16.525	Tamil Nadu	Project commissioned before 1996 march	
Premier Spg & Wvg Mills Pvt. Ltd	16.25	Tamil nadu	In the CDM pipeline	<a href="http://cdmindia.nic.in/cdmindia/projects/PCN_141_06.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_141_06.pdf</a>
Rasi Seeds (P) Ltd.	16.25	Tamil Nadu	One of the participant in the bundled project	<a href="http://cdm.unfccc.int/Projects/DB/TUEV-SUED1173364563.43/view">http://cdm.unfccc.int/Projects/DB/TUEV-SUED1173364563.43/view</a>
Bannari Amman Spinning Mills Ltd.	16.2	Tamil Nadu	In the CDM pipeline	<a href="http://www.dnv.com/focus/climate_change/upload/version%20%20-%20pdd%20%20sept%2005.pdf">http://www.dnv.com/focus/climate_change/upload/version%20%20-%20pdd%20%20sept%2005.pdf</a>
Jayajyoti & Co. Ltd	15.7	Tamil Nadu	One of the participant in the bundled project	<a href="http://cdm.unfccc.int/Projects/DB/TUEV-SUED1173364563.43/view">http://cdm.unfccc.int/Projects/DB/TUEV-SUED1173364563.43/view</a>
Muthoot Fincorp Ltd.	15	Tamil Nadu	Under validation	<a href="http://www.dnv.com/focus/climate_change/Upload/Wind%20Based%20bundled%20renewable%20energy%20project%20Tamil%20Nadu%20India.pdf">http://www.dnv.com/focus/climate_change/Upload/Wind%20Based%20bundled%20renewable%20energy%20project%20Tamil%20Nadu%20India.pdf</a>
MRF Ltd	15.3	Tamil Nadu	The PDD is for 14.4 MW Enercon turbines further to this MRF have 4 x 0.225 NEPC turbines also in TN This totals to 14.4 + 0.9 = 15.3 MW. The details of NEPC turbines is given in wind power directory	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/272/MRF%20PDD.pdf">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/272/MRF%20PDD.pdf</a>

Thus, out of the 3873 MW, 764 MW is installed by developers in capacities exceeding 15 MW. The common practice analysis is carried out for the above developers.

The investment, into wind projects, environment in Tamil Nadu can be better gauged by categorizing them into the following regimes<sup>8</sup>-

Regime A: Pre September 2001 (Central regime- MNES regime)- where the government policies and business parameters such as cost structure per mega watt was more favourable

Regime B: Post September 2001 (TNEB and TNERC policies)- where the government policies were not as favourable and business parameters such as cost per MW was less favourable

The significant difference in Regime B is outlined below-

The Tariff has changed from Rs.2.25/kWh with 5% escalation each year -to first a fixed tariff of INR 2.70 and then a fixed tariff of Rs.2.90/kWh by an order dated 18.05.2006 by Tamil Nadu Electricity Board

The Electricity Generation per MW capacity has started decreasing due to overcrowding of WTGs putting pressure beyond the capacity of evacuation infrastructure.

**The different tariffs under regime A and regime B are presented below:**

Electricity tariff (Rs/kWh)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Average
<b>REGIME 1</b>											
MNES Policy <sup>9</sup>	3.60	3.72	3.83	3.94	4.05	4.17	4.28	4.39	4.50	4.62	4.11
<b>REGIME 2</b>											
TNEB order 2001 <sup>10</sup>	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
TNERC Order 2006 <sup>11</sup>	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90

Wind projects prior to September 2001 were governed by the MNES policy. However this regime was superseded by the state policy and post September 2001 all project fell into the state regime (regime B). As can be seen above, Regime A projects are of a different regulatory and investment environment and hence cannot be compared to the proposed project activity which falls under the Regime B.

As the project falls in the Regime B, installation of developer Mohan Breweries & Distilleries, Aban Loyd Chiles O. Ltd., NEPC Micon, Chettinad Cement Corp and Dalmia Cements (B) Ltd are ignored. Ignoring the projects in the CDM pipeline, we are left with no developers.

***Sub-step 4b. Discuss any similar options that are occurring:***

<sup>8</sup> Please refer to <http://www.nepcindia.com/images/goverpolicy/policytneb.doc> and <http://tnerc.tn.nic.in/orders/commn%20order/2006/D.R.P.NO.1%20OF%202002.pdf> (Page no. 3, point f)

<sup>9</sup> Rs.2.25 for 1994-95 and 5% annual escalation thereafter

<sup>10</sup> Rs.2.70 for 2001 fixed for next 10 years

<sup>11</sup> Rs. 2.90 for 2006, fixed for next 10 years

2. If similar activities are widely observed and commonly carried out, it calls into question the claim that the proposed project activity is financially unattractive (as contended in Step 2) or faces barriers (as contended in Step 3). Therefore, if similar activities are identified above, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. If necessary data/information of some similar projects are not accessible for PPs to conduct this analysis, such projects can be excluded from this analysis. In case similar projects are not accessible, the PD should include justification about non-accessibility of data/information.

All the remaining (falling in Regime B) developers are in the process or getting CER revenues to make the project financially attractive. Hence establishing wind farms of capacities above 15 MW is not a common practice.

### **Common practice analysis for Karnataka Projects**

#### ***Justify the existence of common practice under sub step 4 (b);***

According to the additionality tool, sub step 4 (a), other activities similar to the proposed project are required to be analyzed to determine whether and to which extent similar activities have already diffused in the relevant region. Accordingly, we have analyzed similar projects operational in the region (Karnataka) that are similar in technology and scale (less than 15 MW) and were invested in a comparable regulatory and investment environment (time period when real action was taken towards the proposed project).

#### **Sub step 4(a) - Analyze other activities similar to the proposed project activity:**

The state of Karnataka, where the project activity is implemented, has witnessed four different tariff regimes; the first tariff regime was implemented by the MNES (Ministry of Non conventional Energy Sources) as per its directive in 1994-95. MNES policy stated that the power purchase price for wind projects would be Rs. 2.25 per kWh for the base year 1994-95 with 5% year on year escalation on the base year price. [Refer MNES policy <http://mnes.nic.in/windp.html>]

The second tariff was applied by KERC to projects commissioned before August 2003. The second tariff regime is applicable to the projects that are not eligible under Government of Karnataka orders dated 17 Sep 2002 and 17 Feb 2003 and are commissioned before August 2003.

The third tariff regime applies to projects commissioned after August 2003 up to May 2004. In 2003, the Karnataka Electricity Regulatory Commission (KERC) came out with its order

on determination of tariff for NCE projects which set a tariff of Rs. 3.10/kWh for projects implemented after September 2003 and 2% year on year escalation in tariff. ([http://www.kerc.org/orders2003/wind\\_mill\\_ppas.doc](http://www.kerc.org/orders2003/wind_mill_ppas.doc)).

The fourth tariff regime applies to projects commissioned after June 2004. All four regulatory regimes provide for different tariff rates and therefore projects implemented under one regime cannot be compared to projects implemented under other regimes. The table below presents the applicable tariff rates under different regimes.

Tariff Regime	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Average
Regime 1 (Projects commissioned till 31 July 2002) <sup>12</sup>	3.67	3.85	4.04	4.24	4.45	4.68	4.91	5.16	5.41	5.69	4.61
Regime 2 (Projects commissioned from 01 August 2002 to 31 August 2003) <sup>13</sup>	3.32	3.38	3.45	3.51	3.58	3.64	3.71	3.77	3.84	3.90	3.61
Regime 3 (Projects commissioned from 01 September 2003 to 31 May 2004) <sup>14</sup>	3.16	3.22	3.29	3.35	3.41	3.47	3.53	3.60	3.66	3.72	3.44
Regime 4 (Projects from 01 June 2004) <sup>15</sup>	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40

It is important to note that the different tariff regimes have progressively reduced the tariff applicable for wind energy suppliers for the first three regimes. The project activity was envisaged during the fourth tariff regime; however we have done the common practice analysis for the project activity analyzing projects that are installed during the second, third and fourth tariff regime because of similar tariffs.

There total potential of Karnataka is 6620 MW<sup>16</sup>. As on March 2008, the total installed capacity was 1011.4 MW. Out of this 982.905 MW was installed in the regime 2,3 and 4; 366.4 MW was installed by developers in single projects exceeding 15 MW and 606.95 MW

<sup>12</sup> Rs.2.25 for 1994-95 and 5% annual escalation thereafter for Projects commissioned till 31 July 2002

<sup>13</sup> Rs.3.25 for 2003-04 and 2% annual escalation thereafter for the project commissioned from 01 August 2002 to 31 August 2003

<sup>14</sup> Rs.3.10 for 2003-04 and 2% annual escalation thereafter for the projects commissioned from 01 September 2003 to 31 May 2004

<sup>15</sup> Rs.3.40 fixed for 10 years for first 10 years for the projects commissioned after 1 June 2004

<sup>16</sup> <http://www.windpowerindia.com/statest.html>

was installed in capacities less than 15 MW. As the project under consideration installs 12 MW and 6 MW in Karnataka, we have analyzed all similar projects (less than 15 MW)

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
VSL Mining Comp Ltd	15	CDM project under the PDD titled: "VSL Wind Power project" <a href="http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIF0NERRP4">http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIF0NERRP4</a>
Sanjay Ghodawat	15	CDM project under the PDD titled: 18.86 MW Bundled Wind Power Project, India <a href="http://planetair.ca/modules/mastop_publish/files/files_47b06ef00939d.pdf">http://planetair.ca/modules/mastop_publish/files/files_47b06ef00939d.pdf</a> 8 MW bundled wind power project proposed by Ghodawat Industries India Private Limited <a href="http://www.carbonneutral.com/cnregistry/uploaded/GIPL_PDD.pdf">http://www.carbonneutral.com/cnregistry/uploaded/GIPL_PDD.pdf</a>
MMTC Limited	15	CDM project under the PDD titled: 15 MW grid-connected wind power project by MMTC in Karnataka <a href="http://www.global-arming.de/files/new_medialogallery/HostedMMTC-24July2007.pdf">http://www.global-arming.de/files/new_medialogallery/HostedMMTC-24July2007.pdf</a>
Minerals Enterprises	15	CDM project under the PDD titled: 15 MW Grid Connected Wind Turbine Project in Karnataka <a href="http://cdm.unfccc.int/UserManagement/FileStorage/VSTO0ZBEHAHLDL0VIIG6TBZ8">http://cdm.unfccc.int/UserManagement/FileStorage/VSTO0ZBEHAHLDL0VIIG6TBZ8</a>
Godavat Pan masala	15	CDM project under the PDD titled: Wind Power Generation in VaniVilasSagar <a href="http://www.climatepartner.ch/hintergrund/climate-protection-projects/vanivilassagar-indien/?L=1">http://www.climatepartner.ch/hintergrund/climate-protection-projects/vanivilassagar-indien/?L=1</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Enercon Windfarms Krishna Ltd	15	CDM project under the PDD titled: Enercon Wind Farms in Karnataka Bundled Project- 73.6 MW <a href="http://cdm.unfccc.int/Projects/Validation/DB/SUS27DV38HTOVPIP0IFV3N6700CPZT/view.html">http://cdm.unfccc.int/Projects/Validation/DB/SUS27DV38HTOVPIP0IFV3N6700CPZT/view.html</a>
Indo Wind Energy ltd	14.875	The company website clearly states that the project is CDM project that is being developed. <a href="http://www.indowind.com/images/ar9.pdf">http://www.indowind.com/images/ar9.pdf</a> , <a href="http://myiris.com/shares/company/writeDet.php?icode=indenerg">http://myiris.com/shares/company/writeDet.php?icode=indenerg</a> , <a href="http://www.moneycontrol.com/news_html_files/pdffiles/mar2007/indowinden.pdf">http://www.moneycontrol.com/news_html_files/pdffiles/mar2007/indowinden.pdf</a>
Jindal Alluminium ltd	12.64	CDM project under the PDD titled: 8.5 MW wind power project in Chitradurga district in Karnataka by Jindal Aluminium Ltd. <a href="http://cdm.unfccc.int/UserManagement/FileStorage/XUBJNHIH1OB2K05VUVWIRXE6LZFIQG">http://cdm.unfccc.int/UserManagement/FileStorage/XUBJNHIH1OB2K05VUVWIRXE6LZFIQG</a>
VS Lad & Sons	12	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIFONERRP4">http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIFONERRP4</a>
DLF Limited	11.2	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view</a>
Maris-Karnataka	11.1	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/DNH19DQ9PA4L1A9J9XHHJ1OUK8IWRP">http://cdm.unfccc.int/UserManagement/FileStorage/DNH19DQ9PA4L1A9J9XHHJ1OUK8IWRP</a>

Project proponent	MW installed	Source
Gangadhar Narsinghdas Agarwal	10.5	<p>CDM project under the PDD titled: Bundled 15 MW Wind Power Project in India <a href="http://cdm.unfccc.int/UserManagement/FileStorage/Z89J7HP8CYEKXJIPO3IM0TECD9FNB1">http://cdm.unfccc.int/UserManagement/FileStorage/Z89J7HP8CYEKXJIPO3IM0TECD9FNB1</a> Renewable Wind Power generation for promoting energy security <a href="http://cdm.unfccc.int/UserManagement/FileStorage/WPQC2HM4VIXYSFOA9UDB01TEJ6G7L5">http://cdm.unfccc.int/UserManagement/FileStorage/WPQC2HM4VIXYSFOA9UDB01TEJ6G7L5</a></p> <p>CDM project under the PDD titled: Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I">http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I</a></p>
Srei Infra Finance Ltd	10.4	<p>SREI Infrastructure and Finance Ltd is a Non Banking Financial Institution (NBFC) and thus the investment climate for it is different from that of GPECL. This is because the cost of capital for such institutions is much lower than those for non financial institutions (like GPECL). Hence such an institution cannot be compared with the said project activity. Further, the project intends to seek CDM revenues. Furthermore, the Annual Reports of the company for the year 2006-07 and 2007-08 specifically bear a mention of availing CDM benefits for its renewable energy projects. <a href="http://www.srei.com/srei_pdf/sreiannual/2006-07.pdf">http://www.srei.com/srei_pdf/sreiannual/2006-07.pdf</a> <a href="http://www.srei.com/srei_pdf/sreiannual/2007-08.pdf">http://www.srei.com/srei_pdf/sreiannual/2007-08.pdf</a> Thus the project proponent intends to seek CDM revenues for the project and hence it has been excluded from common practice analysis.</p>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
CEEPCO Industries Pvt Ltd	10.2	CDM project under the PDD titled: Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) <a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R</a>
V.M.Salgoankar & Bro Pvt Ltd	10	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/J59GV1CF06ISWYDLUK42XARBPN8ZHQ">http://cdm.unfccc.int/UserManagement/FileStorage/J59GV1CF06ISWYDLUK42XARBPN8ZHQ</a>
RSJ Ozone Pvt Ltd	9.75	<a href="https://vcsregistry1.apx.com/myModule/rpt/myrpt.asp">https://vcsregistry1.apx.com/myModule/rpt/myrpt.asp</a>
Savita Chemicals Ltd	9.6	Project Concept Note title & link are mentioned below Bundled wind power projects in Maharashtra and Karnataka states in India by M/S Savita Chemicals Limited and its group companies; namely Naved Investments & Trading Company Private Ltd and Khatri Investments Private Ltd. and Bharati Shipyard Limited <a href="http://cdmindia.nic.in/cdmindia/projects/PCN_1169_08.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_1169_08.pdf</a> <a href="http://cdm.unfccc.int/UserManagement/FileStorage/TNG2TJ04HKGYYDD0FDPQ3183YMSH0IE">http://cdm.unfccc.int/UserManagement/FileStorage/TNG2TJ04HKGYYDD0FDPQ3183YMSH0IE</a>
Bhoruka POWER Co Ltd	9.2	<a href="http://cdm.unfccc.int/Projects/Validation/DB/ZEX89LGQK KFI3NQAUS5KNC4LAS6WCB/view.html">http://cdm.unfccc.int/Projects/Validation/DB/ZEX89LGQK KFI3NQAUS5KNC4LAS6WCB/view.html</a> <a href="http://cdm.unfccc.int/Projects/Validation/DB/SNF5WB0SP EVJ32V36Z83B2H6J3CBY8/view.html">http://cdm.unfccc.int/Projects/Validation/DB/SNF5WB0SP EVJ32V36Z83B2H6J3CBY8/view.html</a>
Enercon Windfarms Chitradurga Ltd	8.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I">http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I</a>
Bellary Iron ores Pvt ltd	8.6	CDM project under the PDD titled: 25.6 MW grid connected Wind Power based electricity generation project in Karnataka, India <a href="http://cdm.unfccc.int/UserManagement/FileStorage/ZZK85WVMO8FGDN9CQSG3J5EHQ9PPA6">http://cdm.unfccc.int/UserManagement/FileStorage/ZZK85WVMO8FGDN9CQSG3J5EHQ9PPA6</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
P Venganna Setty Bros	8.1	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/RAB9LITN8FXQ50K1JWOZ63GSDMH4PY">http://cdm.unfccc.int/UserManagement/FileStorage/RAB9LITN8FXQ50K1JWOZ63GSDMH4PY</a>
GEI	8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/7PIGX E8LNOSC5VJ3HA2W6QBZDM0YFK">http://cdm.unfccc.int/UserManagement/FileStorage/7PIGX E8LNOSC5VJ3HA2W6QBZDM0YFK</a>
BSES Ltd	7.59	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/7PIGX E8LNOSC5VJ3HA2W6QBZDM0YFK">http://cdm.unfccc.int/UserManagement/FileStorage/7PIGX E8LNOSC5VJ3HA2W6QBZDM0YFK</a>
Sapthagiri Distilleries	7.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EY N7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EY N7KWO13MRE0Q3FLKEAGANOXMS</a>
Khatau Narbheram &Co	7.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/94DFY QLKU5J1WT3ZSICH6V8RNX0APO">http://cdm.unfccc.int/UserManagement/FileStorage/94DFY QLKU5J1WT3ZSICH6V8RNX0APO</a>
Siddaganga Oil Ext Ltd	6.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4L N5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4L N5D6YY0EZ9MDEUUCSB99HHER7R</a> <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CXG1 YGSZV785FKA3N1GHQHVICWGE7I">http://cdm.unfccc.int/UserManagement/FileStorage/CXG1 YGSZV785FKA3N1GHQHVICWGE7I</a> <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EY N7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EY N7KWO13MRE0Q3FLKEAGANOXMS</a>
Rennaisance Holdings &Dev Pltd	6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/M2Y38 1PD0REXVUSAQ9LWNFZ6IG5TBK">http://cdm.unfccc.int/UserManagement/FileStorage/M2Y38 1PD0REXVUSAQ9LWNFZ6IG5TBK</a>
Mahadev Soaps	6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EY N7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EY N7KWO13MRE0Q3FLKEAGANOXMS</a>  <a href="#">Name changed to Rohit Surfactants</a>
Madras cement Ltd	6	<a href="http://cdm.unfccc.int/Projects/Validation/DB/AOLO0C51S E7IUL19FP3B27HORLRSK0/view.html">http://cdm.unfccc.int/Projects/Validation/DB/AOLO0C51S E7IUL19FP3B27HORLRSK0/view.html</a>
Ghodawat Industries Ltd	5.6	Manufacturer
Ranka N Ranka	5	
BPCL	5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/13ULO Q5PFWCA6EJ8GNI4HMBZ2TV7RD">http://cdm.unfccc.int/UserManagement/FileStorage/13ULO Q5PFWCA6EJ8GNI4HMBZ2TV7RD</a>
Bhagyanagar Metals	5	<a href="http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6H X301X7CQ25085JUSIDAJA/view.html">http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6H X301X7CQ25085JUSIDAJA/view.html</a>

Project proponent	MW installed	Source
BEML	5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/DNHI9DQ9PA4L1A9J9XHHJ1OUK8IWRP">http://cdm.unfccc.int/UserManagement/FileStorage/DNHI9DQ9PA4L1A9J9XHHJ1OUK8IWRP</a>
Magma Leasing Ltd	4.95	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/NQ3TP4ICHG29LD1K0ZWEU5O7AYXMSB">http://cdm.unfccc.int/UserManagement/FileStorage/NQ3TP4ICHG29LD1K0ZWEU5O7AYXMSB</a>
The Hutti Goldmines company ltd	4.8	Government entity, thus excluded from the analysis
Mysore Mercentile Co Ltd	4.8	<a href="http://cdm.unfccc.int/Projects/DB/RWTUV1189519091.84/view">http://cdm.unfccc.int/Projects/DB/RWTUV1189519091.84/view</a>
Vikram Traders	4.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/9UJ45NGITBMZQDAH8KP1FE2XCSRY37">http://cdm.unfccc.int/UserManagement/FileStorage/9UJ45NGITBMZQDAH8KP1FE2XCSRY37</a>
HGML	4.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Shilpa Medicare Ltd	4.4	<a href="http://cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf</a> <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Shriram Transport Finance Ltd	4.2	Finance provider and thus not similar to the project proponent
Shriram Investments P Ltd	4.2	Finance provider and thus not similar to the project proponent
Sharada Construction	4.2	
Bhagyanagar India Ltd	4	CDM project under the PDD titled: Bundled 15 MW Wind Power Project in India <a href="http://cdm.unfccc.int/UserManagement/FileStorage/Z89J7HP8CYEKXJIPO3IM0TECD9FNB1">http://cdm.unfccc.int/UserManagement/FileStorage/Z89J7HP8CYEKXJIPO3IM0TECD9FNB1</a> Renewable Wind Power generation for promoting energy security <a href="http://cdm.unfccc.int/UserManagement/FileStorage/WPQC2HM4VIXYSFOA9UDB01TEJ6G7L5">http://cdm.unfccc.int/UserManagement/FileStorage/WPQC2HM4VIXYSFOA9UDB01TEJ6G7L5</a> CDM project under the PDD titled: Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I">http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I</a>
V.M.Salgoankar & Sales International	3.75	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/OS6PIH7WBGMNKY3ZLRJQDT8FE12XVC">http://cdm.unfccc.int/UserManagement/FileStorage/OS6PIH7WBGMNKY3ZLRJQDT8FE12XVC</a>
Revathi Raju	3.75	
Mantri	3.75	<a href="http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html">http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html</a>

## VCS Project Description Template

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Unnati Projects Ltd	3.2	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
IPP Project at Gadag	3.2	
Brindavan Agro Industries Ltd	3.2	<a href="http://cdm.unfccc.int/Projects/Validation/DB/ZEX89LGQK KFI3NQAUS5KNC4LAS6WCB/view.html">http://cdm.unfccc.int/Projects/Validation/DB/ZEX89LGQK KFI3NQAUS5KNC4LAS6WCB/view.html</a> <a href="http://cdm.unfccc.int/Projects/Validation/DB/SNF5WB0SP EVJ32V36Z83B2H6J3CBY8/view.html">http://cdm.unfccc.int/Projects/Validation/DB/SNF5WB0SP EVJ32V36Z83B2H6J3CBY8/view.html</a>
Ramco Industries Ltd	3.1	
Pragati Arima Oil Distilleries Pvt Ltd	3	
Eswari Textiles(b)	3	<a href="http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf">http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf</a>
Eswari Knitting Works(b)	3	<a href="http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf">http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf</a>
BEL	3	CDM project under the PDD titled: 8.5 MW wind power project in Chitradurga district in Karnataka by Jindal Aluminium Ltd. <a href="http://cdm.unfccc.int/UserManagement/FileStorage/XUBJ NHIH1OB2K05VUVWIRXE6LZFIQG">http://cdm.unfccc.int/UserManagement/FileStorage/XUBJ NHIH1OB2K05VUVWIRXE6LZFIQG</a>
MK Agrotech Pvt Ltd	2.8	<a href="http://cdm.unfccc.int/Projects/DB/RWTUV1173341097.6/view">http://cdm.unfccc.int/Projects/DB/RWTUV1173341097.6/view</a>
Vandana Ispat Ltd	2.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/LGQG QDS34HK2XULIG2KU2XHZVEAG9H">http://cdm.unfccc.int/UserManagement/FileStorage/LGQG QDS34HK2XULIG2KU2XHZVEAG9H</a>
Siddayu Ayurvedic Reserch Foundn P ltd	2.5	<a href="http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6H X301X7CQ25085JUSIDAJA/view.html">http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6H X301X7CQ25085JUSIDAJA/view.html</a>
Shakambhari enterprises	2.5	
Mukund Kamath S	2.5	
Kariganur	2.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
E.Ramamurthy	2.5	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Bharat Electronics Ltd	2.5	CDM project under the PDD titled: Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd. <a href="http://cdm.unfccc.int/UserManagement/FileStorage/9UZAIUVWY1UPORDM010UCQ7MD2DDVS">http://cdm.unfccc.int/UserManagement/FileStorage/9UZAIUVWY1UPORDM010UCQ7MD2DDVS</a> Enercon Wind Farms in Karnataka Bundled Project – 33 MW <a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R</a>
SE Investment Ltd	2.4	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
R B Seth Shreeram Narsingdas	2.4	
Cooper Foundry Pvt Ltd	2.4	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
VXL Systems	2.2	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view</a>
Panama Business centre	2.2	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R</a>
Gem Crafts Enterprise Pvt Ltd	2.2	<a href="http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga_bundled_wind_power_project_PDD.pdf">http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga_bundled_wind_power_project_PDD.pdf</a>
Balasaheb M Ladkat	2.2	CDM project under the PDD titled: Enercon Wind Farms in Karnataka Bundled Project- 73.6 MW <a href="http://cdm.unfccc.int/Projects/Validation/DB/SUS27DV38HTOVPIP0IFV3N670OCPZT/view.html">http://cdm.unfccc.int/Projects/Validation/DB/SUS27DV38HTOVPIP0IFV3N670OCPZT/view.html</a>
Vandana Global Ltd	2.05	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/LGQQQDS34HK2XULIG2KU2XHZVEAG9H">http://cdm.unfccc.int/UserManagement/FileStorage/LGQQQDS34HK2XULIG2KU2XHZVEAG9H</a>
Triveni Enterprises	2.05	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRMI4L7T53SW">http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRMI4L7T53SW</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Happy Valley Developers	2.05	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRCMI4L7T53SW">http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRCMI4L7T53SW</a>
Lovely Fragrance	2	
Kirloskar Electric Co	2	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Bellad & Company	1.9	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIFONERRP4">http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIFONERRP4</a>
BS Channabassappa & Sons	1.875	
S Kumars	1.75	
Walden Properties Pvt Ltd	1.65	<a href="http://www.dnv.com/certification/climatechange/upload/bundle%20-%20cdm%20-%20pdd.pdf">http://www.dnv.com/certification/climatechange/upload/bundle%20-%20cdm%20-%20pdd.pdf</a>
Swarna Properties	1.65	
Usdev International Ltd	1.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Srinivasa Cycline Ltd	1.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Shriram Capacitors Pvt Ltd	1.6	
Prasad Technology Park Ltd	1.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Prasad Global Solutions	1.6	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
Panama Infra park Ltd	1.6	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
DR Container Terminal	1.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Cauvery Coffee Traders	1.6	
BV Finance & Leasing Ltd	1.6	<a href="http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga_bundled_wind_power_project_PDD.pdf">http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga_bundled_wind_power_project_PDD.pdf</a>

## VCS Project Description Template

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Walden	1.5	<a href="http://www.dnv.com/certification/climatechange/upload/bundle%20-%20cdm%20-%20pdd.pdf">http://www.dnv.com/certification/climatechange/upload/bundle%20-%20cdm%20-%20pdd.pdf</a>
Victus Associates	1.5	<a href="http://cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf</a>
Sameera Trading Company	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Sai Krishna MineralsPvt Ltd	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Ramesh Steels	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Nutech Prasiddi Consortium	1.5	
Nutech Associates	1.5	
Mccharles India Ltd	1.5	
Keerthi Industries Ltd	1.5	<a href="http://www.cdmindia.nic.in/cdmindia/projects/1285-08.pdf">http://www.cdmindia.nic.in/cdmindia/projects/1285-08.pdf</a>
K.M.M.I	1.5	<a href="http://cdmindia.nic.in/cdmindia/projects/PCN_758_07.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_758_07.pdf</a>
Indian Design	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRCMI4L7T53SW">http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRCMI4L7T53SW</a>
ILC Industries Ltd	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/X3TJ4HF970DQRES8AULPB2ZIKMG1V5">http://cdm.unfccc.int/UserManagement/FileStorage/X3TJ4HF970DQRES8AULPB2ZIKMG1V5</a>
Eswari Garments(b)	1.5	<a href="http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf">http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf</a>
Energy Development	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Eastman International	1.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Allum	1.5	CDM project under 2 PDDs titled: 1) "125 MW Wind Power Project in Karnataka, India" <a href="http://cdm.unfccc.int/UserManagement/FileStorage/6TU55OXGCAEHNZQV27694ATC31SOM3">http://cdm.unfccc.int/UserManagement/FileStorage/6TU55OXGCAEHNZQV27694ATC31SOM3</a> , and 2) "8.35 MW wind power project at Guddarangavana Halli, Chitradurga, Karnataka in India" <a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/434/Revised%20Final%20CDM_4_Kar_PDD.pdf">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/434/Revised%20Final%20CDM_4_Kar_PDD.pdf</a>
Patel Shanti Steel	1.43	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
BSC Textiles Ltd	1.425	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/RAB9LITN8FXQ50K1JWOZ63GSDMH4PY">http://cdm.unfccc.int/UserManagement/FileStorage/RAB9LITN8FXQ50K1JWOZ63GSDMH4PY</a>
Vishwa Vishal Engineering Ltd	1.25	
Vinay Patil	1.25	
The Chennai Silks	1.25	
Swarna Construction	1.25	
Suresh Kumar Sharma	1.25	
Surana telecom Ltd	1.25	<a href="http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html">http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html</a>
SC Shettar & Sons	1.25	
Sanjana	1.25	
Research Dev & Mfg Corporation	1.25	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRCMI4L7T53SW">http://cdm.unfccc.int/UserManagement/FileStorage/YVZ9OX6E8NDJFG2HKBRCMI4L7T53SW</a>
Ratnagiri Impex Pvt Ltd	1.25	
Ramesh Kumar Hanjarimal Rathod	1.25	
Navalakha Translines	1.25	
Nav Bharat International Ltd	1.25	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1186566570.26/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1186566570.26/view</a>

## VCS Project Description Template

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
MPR Windfram+C259s	1.25	
Markdata Paower & Energy ltd	1.25	<a href="http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html">http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html</a>
Manoj.v.Telisara	1.25	
Mahalakshmi Construction Corp	1.25	
Magnum	1.25	
Kuminex Minerals	1.25	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Kashyap	1.25	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Jivraj Tea Company	1.25	<a href="http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html">http://cdm.unfccc.int/Projects/Validation/DB/J6DV04M6HX301X7CQ25085JUSIDAJA/view.html</a>
Jindal	1.25	
Indian Wind Energy Association	1.25	
Globe Transport Co pvt Ltd	1.25	
Ferromer Shipping Pvt Ltd	1.25	<a href="http://cdm.unfccc.int/Projects/DB/RWTUV1173341097.6/view">http://cdm.unfccc.int/Projects/DB/RWTUV1173341097.6/view</a>
Ensemble Infrastructure Indian Ltd	1.25	<a href="https://vcsregistry1.apx.com/myModule/rpt/myrpt.asp?r=111">https://vcsregistry1.apx.com/myModule/rpt/myrpt.asp?r=111</a>
Emkay Taps	1.25	
BSK Trading Inc	1.25	
Bharti	1.25	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/J59GV1CF06ISWYDLUK42XARBPN8ZHQ">http://cdm.unfccc.int/UserManagement/FileStorage/J59GV1CF06ISWYDLUK42XARBPN8ZHQ</a>
B.D.Patil	1.25	CDM project under the PDD titled: Wind Power Generation in VaniVilasSagar <a href="http://www.climatepartner.ch/hintergrund/climate-protection-projects/vanivilassagar-indien/?L=1">http://www.climatepartner.ch/hintergrund/climate-protection-projects/vanivilassagar-indien/?L=1</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Amitronics	1.25	<p>The company website states that the company's wind installations are under CDM.  <a href="http://www.nuziveeduseeds.co.in/wind.html">http://www.nuziveeduseeds.co.in/wind.html</a>;            CDM project titled:            1) "NSL 27.65 MW Wind Power Project in Karnataka, India"  <a href="http://cdm.unfccc.int/UserManagement/FileStorage/7MKGRE0K2J0D6O1WKHV6XTW67UCAD6">http://cdm.unfccc.int/UserManagement/FileStorage/7MKGRE0K2J0D6O1WKHV6XTW67UCAD6</a>            2) "33MW Wind Power Project at Linganhalli and Rangayyanadurga"  <a href="http://cdm.unfccc.int/UserManagement/FileStorage/S2I3TPZ8NYWX5MH014UDJECF7Q9OGA">http://cdm.unfccc.int/UserManagement/FileStorage/S2I3TPZ8NYWX5MH014UDJECF7Q9OGA</a></p>
Allegro Ventures India Pvt Ltd	1.25	
Aarti V Patil	1.25	<p>CDM project under the PDD titled:            " Enercon Wind Farm (Hindustan) Ltd in Karnataka"  <a href="http://cdm.unfccc.int/UserManagement/FileStorage/4N3W9XGUHAIZYL0CJDFQRV6S17K5ET">http://cdm.unfccc.int/UserManagement/FileStorage/4N3W9XGUHAIZYL0CJDFQRV6S17K5ET</a></p>
Y.Mahabaleswara ppa & Sons	1.2	<p><a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/335/Y%20M%20&amp;%20Sons%20PDD%20Ver%20-%2001.pdf">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/335/Y%20M%20&amp;%20Sons%20PDD%20Ver%20-%2001.pdf</a></p>
WISE	1.2	<p><a href="http://cdmindia.nic.in/cdmindia/projects/PCN_758_07.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_758_07.pdf</a></p>
Laxmi Organics	1.2	<p><a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a></p>
Brindawan Agro	1.2	<p><a href="http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I">http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I</a></p>

Project proponent	MW installed	Source
Amrit Bottlers Pvt Ltd	1.2	CDM project under 2 PDDs titled: 1) "Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd" <a href="http://www.dnv.com/focus/climate_change/Upload/Enercon_Chitradurga_PDD-May2005.pdf">http://www.dnv.com/focus/climate_change/Upload/Enercon_Chitradurga_PDD-May2005.pdf</a> , and 2) "Enercon Wind Farms in Karnataka Bundled Project- 33 MW" <a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R</a> ,
International Conveyors Ltd	1.15	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Associated stone industries Ltd	1.125	
Mansukumal Investments Pvt Ltd	0.95	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/TNG2TJ04HKGYYDD0FDPOQ3183YMSH0IE">http://cdm.unfccc.int/UserManagement/FileStorage/TNG2TJ04HKGYYDD0FDPOQ3183YMSH0IE</a>
Vivek trading Co	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Vivek Pharmachem Ltd	0.8	<a href="http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga__bundled__wind_power_project_PDD.pdf">http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga__bundled__wind_power_project_PDD.pdf</a>
Vandana Rollings Mills Ltd	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/LGQQQDS34HK2XULIG2KU2XHZVEAG9H">http://cdm.unfccc.int/UserManagement/FileStorage/LGQQQDS34HK2XULIG2KU2XHZVEAG9H</a>
U.D.Foundation	0.8	
Texonic Instruments	0.8	
Steel Fab offshore	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
Srinivasa Serigiri	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
Sridevi chemicals	0.8	
Sameer Ladkat	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
RS Surya	0.8	

## VCS Project Description Template

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
RK Marbles	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
RDS Construction Comp Ltd	0.8	
Rangamma Steels & Malleables	0.8	
Rahul Dravid	0.8	
R.B. Shriram Narsigdas	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Protectron pvt Ltd	0.8	
Protectron Electromech Ltd	0.8	
Neharaj Energy	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Myura Steels Pvt Ltd	0.8	
Mumbai Stock Brokers Pvt Ltd	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Mahalakshmi Commercial Services	0.8	
M.K. Agrotech	0.8	
Kaaleeswari refineries Ltd	0.8	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1186566570.26/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1186566570.26/view</a>
Jublee Textile Mills	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
I.G.E. India Ltd	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Gemscab Industries Ltd	0.8	
Gautam Ladkat	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
G. Shoe Exports	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Fatehpurai Transf & Switch gears P ltd	0.8	

## VCS Project Description Template

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Elnet Technologies Ltd	0.8	
Dewanchand Ramsaran	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
Desai Brothers Ltd	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
Dempo Industries P ltd	0.8	<a href="http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF">http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/172/30.4%20MW%20BUNDLE%20PDD.PDF</a>
Compucom	0.8	
Chandulal Surajmal	0.8	
CBM Corporation	0.8	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R</a> <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I">http://cdm.unfccc.int/UserManagement/FileStorage/CXG1YGSZV785FKA3N1GHQHVICWGE7I</a> <a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Arts & Crafts Exports	0.8	
Suresh Productions	0.75	
Sanghvi Movers Ltd	0.75	
Rajesh Nair	0.75	
Prabhat Agri Bitech Pvt ltd	0.75	<a href="http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf">http://www.cdmindia.nic.in/cdmindia/projects/PCN_931_08.pdf</a>
KISPL	0.75	
VT Switchgear & Transformers	0.6	
Topaz Investments Pvt Ltd	0.6	
Swaraj PVC Pipes Ltd	0.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Star Flexi Pack Industries	0.6	<a href="http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga__bundled__wind_power_project_PDD.pdf">http://www.myclimate.org/fileadmin/images/ksp/ksp_international/726_wind_india/India_Chitradurga__bundled__wind_power_project_PDD.pdf</a>
Shradha Constru & Power Gen P Ltd	0.6	<a href="http://www.cdminia.nic.in/cdminia/projects/PCN_931_08.pdf">http://www.cdminia.nic.in/cdminia/projects/PCN_931_08.pdf</a>
Sanjana Power	0.6	
Raja Magnetics Ltd	0.6	
Prime Tex Apparels Pvt Ltd	0.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Panama Credit and Capital Limited	0.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R">http://cdm.unfccc.int/UserManagement/FileStorage/QB4LN5D6YY0EZ9MDEUUCSB99HHER7R</a>
P. Vijay Kumar	0.6	<a href="http://cdminia.nic.in/cdminia/projects/PCN_703_07.pdf">http://cdminia.nic.in/cdminia/projects/PCN_703_07.pdf</a>
P Mohan lal	0.6	<a href="http://cdminia.nic.in/cdminia/projects/PCN_703_07.pdf">http://cdminia.nic.in/cdminia/projects/PCN_703_07.pdf</a>
Megna Automotives	0.6	
J'Sons Foundry Pvt Ltd	0.6	
JN Investments	0.6	
Jitendra Majethia	0.6	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
IGE	0.6	
Good Luck Syndicate	0.6	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view</a>
Deffree Engineering P Ltd	0.6	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1187708460.15/view</a>
Associated Autotech Anillaries-1	0.6	CDM project under the PDD titled: 18.86 MW Bundled Wind Power Project, India <a href="http://planetair.ca/modules/mastop_publish/files/files_47b06ef00939d.pdf">http://planetair.ca/modules/mastop_publish/files/files_47b06ef00939d.pdf</a> 8 MW bundled wind power project proposed by Ghodawat Industries India Private Limited <a href="http://www.carbonneutral.com/cnregistry/uploaded/GIPL_PDD.pdf">http://www.carbonneutral.com/cnregistry/uploaded/GIPL_PDD.pdf</a>

## VCS Project Description Template

<b>Project proponent</b>	<b>MW installed</b>	<b>Source</b>
Associate Autolex	0.6	CDM project under the PDD titled: "VSL Wind Power project" <a href="http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIF0NERRP4">http://cdm.unfccc.int/UserManagement/FileStorage/1V5DW5ZJNU9BGYUL8N04SIF0NERRP4</a>
SPML	0.5	
Mysore Engineers Pvt Ltd	0.5	
Ercon Composites	0.5	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Daksh Minerals & Marine (P) Ltd	0.45	<a href="http://cdmindia.nic.in/cdmindia/projects/PCN_703_07.pdf">http://cdmindia.nic.in/cdmindia/projects/PCN_703_07.pdf</a>
Ramco Biotech	0.33	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Swani corporation	0.25	
Suresh C Angadi	0.25	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Mangal S Angadi	0.25	
Fasteners & Allied Products	0.25	
Rajnikanth Foundation	0.23	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Mayura Steels Pvt Ltd	0.23	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Kamal Trading Co	0.23	<a href="http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS">http://cdm.unfccc.int/UserManagement/FileStorage/CE6EYN7KWO13MRE0Q3FLKEAGANOXMS</a>
Sridevi Trading company	0.225	
Shri Swami Samarth Engineers	0.225	
Shree Channeshwara Rice Ondustries	0.225	
Shree Channeshwara Drier	0.225	
S.K.Sridhar	0.225	
S.K.Shashidhar	0.225	

Project proponent	MW installed	Source
Ranjeet Bullion	0.225	
Bedmutha Wire Wire Company Ltd	0.225	The company website clearly states that the project is CDM project that is being developed. <a href="http://www.indowind.com/images/ar9.pdf">http://www.indowind.com/images/ar9.pdf</a> , <a href="http://myiris.com/shares/company/writeDet.php?icode=indenerg">http://myiris.com/shares/company/writeDet.php?icode=indenerg</a> , <a href="http://www.moneycontrol.com/news_html_files/pdf/mar2007/indowinden.pdf">http://www.moneycontrol.com/news_html_files/pdf/mar2007/indowinden.pdf</a>
B.C.Sons	0.225	CDM project under the PDD titled: 15 MW Grid Connected Wind Turbine Project in Karnataka <a href="http://cdm.unfccc.int/UserManagement/FileStorage/VST00ZBEHAHLDL0VIIG6TBZ8">http://cdm.unfccc.int/UserManagement/FileStorage/VST00ZBEHAHLDL0VIIG6TBZ8</a>

A total of 606.95 MW capacity was installed in the regime 2,3 and 4 out of which 470.8 MW is under various stages of CDM/VCS registration and are publicly available. This clearly establishes that diffusion of similar project activities (without carbon revenues) in the relevant region is insignificant.

**Sub step 4(b) ‘Discuss any similar options that are occurring’**

In accordance with 4(b) of the additionality tool

*“If similar activities are widely observed and commonly carried out, it calls into question the claim that the proposed project activity is financially unattractive (as contended in Step 2) or faces barriers (as contended in Step 3). Therefore, if similar activities are identified above, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers.”*

In total of 606.95 was installed in the regimes 2,3 and 4 out of which 470.8 MW is in carbon credit pipeline (i.e. more than 77% of the capacity of the capacity is envisaged with carbon revenues). We have traced 470.8 MW that are envisaged considering carbon revenues. The data for balance capacity of 136 MW is not traceable as most of the information such as Purchase orders, loan documents, Debt Equity ratio, carbon transaction in VCS/CCX markets etc required making the distinction between the projects are confidential and are not available in public domain.

The diffusion of similar project activities (without carbon revenues) in the relevant region is insignificant and is not present in the carbon credit pipeline. This further strengthens the argument that wind power development in Karnataka is significantly dependent on carbon credits and is not a common practice.

Step 4(b) is not required.

*Sub-steps 4a and 4b are satisfied.*

## **2 Monitoring:**

### **2.1 Title and reference of the VCS methodology (which includes the monitoring requirements) applied to the project activity and explanation of methodology choices:**

**Sectoral Scope:** 1, Energy industries (renewable/ non-renewable sources)

**Project Category:** ACM0002, Version-10, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

The approved consolidated baseline and monitoring methodology ACM0002 is the choice of the baseline and monitoring methodology because:

- The project represents electricity capacity additions from wind sources;
- The project is a Greenfield electricity generation from wind sources;
- The geographical and system boundaries of the grid can be clearly identified and information on the characteristics of the grid is available.

The monitoring requirements for the project activity includes:-

- Metering procedures
- Calibration Frequency
- Data Archiving
- Monitoring roles and responsibility

All the above requirements are listed in detail in section 3.2 of the PD.

### **2.2 Monitoring, including estimation, modelling, measurement or calculation approaches:**

#### **Purpose of monitoring**

The purpose of monitoring is to measure the electricity generated and to verify the emission reductions from the project activity.

#### **Types of data and information to be reported, including units of measurement**

The approved monitoring methodology requires monitoring of the electricity generated from the project activity. The monitoring methodology and unit of measurement are described in Sections 3.3.

#### **Origin of the data**

The Project is operated and managed by Suzlon. The organization follows the documentation practices to ensure the reliability and availability of the data for operation of the wind power project. The monitored data can be found from the monthly JMR reports.

#### **Monitoring, including estimation, modelling, measurement or calculation approach**

The monitoring approach, including modelling and measurement is given in section 3.4 and calculation approach for individual parameters are described in section 4 of the PD.

#### **Monitoring times and periods, considering the needs of intended users**

Monitoring will be done as:

- a. Meter reading: Meter readings are taken jointly by the representatives of TNEB & KPTCL/BESCOM, HESCOM and Suzlon. Such meter readings shall be treated as the accurate and final measurement of the energy supplied to grid by the power producer for preceding month for the period of payment. The detailed procedure is explained in section 3.4 of the PD. Electronic format of daily meter readings of the respective WTG's will be collected and the same would be sent to the PP and the received data will be reviewed against the performance guarantee clause mentioned in the O&M contract and accordingly PP will be compensated by Suzlon. PP will archive this data for a period of 2 years after the crediting period.
- b. Frequency: The meter reading will be taken in the first week of every month.
- c. Recording: The recording of the meter reading will be done in the hard copy format once in a month in the form of JMR certificates.
- d. Archiving Policy: The data will be archived for a period of 2 years after the end of the crediting period in the hard copy format.

#### **Monitoring roles and responsibilities (Refer Section 1.15)**

The authority and responsibility of project overall project coordination in relation to the VCS validation would be with the project proponent. EPC Contractor is responsible for apportioning of the electricity generated.

**Managing data quality**

The accuracy of monitoring parameter is ensured by adhering to the calibration and testing procedure as described in the QA/QC procedures described for each parameter in Section 3.3 below. The project will adhere to all the mandatory regulatory and statutory requirements at the state as well as national level. The data will be archived for a period of 2 years after the end of the crediting period in the hard copy format.

**2.3 Data and parameters monitored / Selecting relevant GHG sources, sinks and reservoirs for monitoring or estimating GHG emissions and removals:**

As per ACM0002, version 10, the emission reductions are calculated as electricity supplied to the grid multiplied by the emission factor. The net electricity exported to the grid is calculated as:-

<b>Data / Parameter:</b>	$EG_{ey}$
<b>Data unit:</b>	MWh (Mega-watt hour)
<b>Description:</b>	Electricity exported to the grid by the Project
<b>Source of data to be used:</b>	Electricity exported by the project activity to the grid as per as per JMR(Form - B)
<b>Value of data applied for the purpose of calculating expected emission reductions</b>	Annual electricity supplied to the grid by the Project = $(0.6*9*8760*30.73\%) + (1.5*19*8760*28.91\%)$ = 86,735 MWh
<b>Description of measurement methods and procedures to be applied:</b>	Net electricity exported to the grid will be measured by the two-way export/import Trivector meter. The procedures for metering and meter reading will be as per the PPA.
<b>QA/QC procedures to be applied:</b>	QA/QC procedures are elaborated in the monitoring plan
<b>Any comment:</b>	

**2.4 Description of the monitoring plan**

**Metering:** Electricity supplied to the grid is metered by the Parties (KPTCL, Suzlon and the PP) at the high voltage side of the step up transformer installed at the Project Site.

**Metering Equipment:** Metering system for the project activity consists of one main and one check meter. Both the meters are **two-way Trivector meters capable of recording import and export of electricity** and provide output in the form of net electricity supplied to the grid. The main meter is installed and owned by the Project, whereas check meters are owned by KPTCL. The metering equipment is maintained in accordance with electricity standards prevalent in Karnataka. The meters installed are capable of recording and storing half hourly readings of all the electrical parameters for a minimum period of 35 days with digital output.

**Meter Readings:** The Net electricity supplied to the grid is recorded by taking a Joint Meter Reading (JMR) in the presence of Officials from off-taking Utility and Suzlon representatives. The Joint meter reading contains the value of energy imported and exported and the net export to the grid during the recording period. This Joint meter reading is certified by the Executive engineer of the utility and by Suzlon Officials. These certified readings are then used by the Discom officials to prepare the tariff invoices. Thus the sole monitoring parameter for the project activity is the net electricity supplied to the grid as mentioned in the JMR, which will be crosschecked with the value mentioned in the invoices.

Procedure for Billing:

The PP shall submit to the designated officer of the Discom a monthly invoice for each billing period in the format prescribed by the discom from time to time setting forth those amounts payable by the discom for the delivered energy in accordance with the clauses mentioned in the PPA's

Monthly invoices shall be:

$$DE = X_1 - (X_1 * Z \%)$$

Where

DE is the delivered energy pertaining to the project

X<sub>1</sub> is the reading of the energy meter installed at the project site

Z is the % transmission line loss incurred in the transmission line between the project and the receiving station and shall be

$$Z = [(X_1 + X_2 + X_3 + \dots) - Y / (X_1 + X_2 + X_3 + \dots)] * 100\%$$

Where

Y is the reading of the bulk energy meter installed on the 66 KV side of the receiving station X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub> etc are the readings of the energy meters installed at the various

individual wind mill power projects being developed/proposed to be set up in the area and connected to the receiving station

**Inspection of Energy Meters:** All main and check energy meters (export and import) and all associated instruments, transformers installed at the Project are of 0.2% accuracy class. Each meter is jointly inspected and sealed on behalf of the Parties and is not to be interfered with by either Party except in the presence of the other Party or its accredited representatives.

**Meter Test Checking:** All main and check meters are tested for accuracy with reference to a portable standard meter. The portable standard meter is owned by KPTCL. The main and check meters shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2 %accuracy class. The consumption registered by the main meters alone will hold good for the purpose of metering electricity supplied to the grid as long as the error in the main meters is within the permissible limits.

If during the meter test checking,

- the main meter is found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then the meter reading will be as per the main meter as usual. The check meter shall, however, be calibrated immediately.
- the main meter is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible of error, then the meter reading for the month up to the date and time of such test shall be as per the check meter. There will be a revision in the meter reading for the period from the previous calibration test up to the current test based on the readings of the check meter. The main meter shall be calibrated immediately and meter reading for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.
- both the main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the main meters shall be immediately calibrated and the correction applied to the reading registered by the main meter to arrive the correct reading of energy supplied for metering electricity supplied to the grid for the period from the last month's meter reading up to the current test. Meter reading for the period thereafter till the next monthly reading shall be as per the calibrated main meter
- If during any of the monthly meter readings, the variation between the main meter and the check meter is more than the permissible limit for meters of 0.2% accuracy class, all the meters shall be re-tested and calibrated immediately.

**In case of the WEG's connected to TNEB grid the Monitoring procedure is as**

**follows**

- Meters (Both main and check) are installed right next to each WEG
- The Wind Energy Generator will be provided with energy meters with facilities to record export and import of energy. The meter has 0.5 % class accuracy.
- The reading of the meters shall be taken periodically by authorized officers of TNEB and representative of Suzlon, if present.
- The meters shall be tested for accuracy and shall be calibrated once in two years. Both parties shall seal the meter. Defective meters shall be replaced immediately.
- If during the annual calibrations, both the main and the check meters are found to have errors beyond permissible limits, the bill shall be revised for the previous 3 months or the exact period of know and agreed upon by both the parties, by applying corrections as determined by the meter testing wing of TNEB to the consumption registered by the meter with lesser error.
- In cases where a WEG has only the main meter installed- The O&M team checks the meters on daily basis. If the meter is found to non-functional, TNEB would be informed immediately and the meter will be replaced. Subsequent billing would happen according to the replaced meter. The generation for the intervening period would be forfeited.

**3 GHG Emission Reductions:****3.1 Explanation of methodological choice:**

According to the approved methodology ACM0002, version 10, Emission Reductions are calculated using “Tool to calculate emission factor for the electricity system”

$$ER_y = BE_y - PE_y - L_y$$

Where:

$BE_y$  Baseline Emissions in year y (t CO<sub>2</sub>e/yr)

$PE_y$  Project Emissions in year y (t CO<sub>2</sub>e/yr)

$L_y$  Leakage Emissions in year y (t CO<sub>2</sub>e/yr)

The combined emission factor is fixed ex-ante for the project activity and is calculated in accordance with the prescribed tool.

**Details of Baseline data:**

Data of Operating and Build Margin for the three financial years from 2006-07 to 2008-09 has been obtained from –

The CO<sub>2</sub> Baseline Database for the Indian Power Sector

**Ministry** of Power: Central Electricity Authority (CEA)

Version 5.0

Dated: November 2009

Key baseline information is reproduced in annexure 2.

The detailed excel sheet is available at:

<http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>

### 3.2 Quantifying GHG emissions and/or removals for the baseline scenario:

Ex-ante calculation of emission reductions is equal to ex-ante calculation of baseline emissions as project emissions and leakage are nil.

Baseline emission factor (Combined Margin) ( $EF_{\text{grid, CM, } y}$ )  
 $= 0.9448 \text{ tCO}_2\text{e/MWh}$

Annual electricity supplied to the grid by the Project ( $EG_{\text{PI}, y}$ )  
 $= (5.4 \times 30.73 \% \times 8,760 + 28.5 \times 28.92 \% \times 8760) \text{ MWh}$   
 $= 86,735 \text{ MWh}$

Annual Baseline Emissions Reduction:  $ER_y = EF_{\text{grid, CM, } y} * EG_{\text{PI}, y}$   
 $= 0.9448 \text{ tCO}_2\text{e/MWh} \times 86,735 \text{ MWh}$   
 $= 81,947 \text{ tCO}_2\text{e}$

### 3.3 Quantifying GHG emissions and/or removals for the project:

The project activity is a Greenfield wind power project and hence does not emit any carbon emissions.

### 3.4 Quantifying GHG emission reductions and removal enhancements for the GHG project:

The project activity reduces carbon dioxide through displacement of grid electricity generation with fossil fuel based power plants by renewable-wind electricity. The emission reduction  $ER_y$  due to project activity during a given year  $y$  is calculated as the difference between baseline emissions ( $BE_y$ ), project emissions ( $PE_y$ ) and emissions due to leakage ( $LE_y$ ) as per the formula given below:

$$ER_y = BE_y - PE_y - LE_y$$

As described in Section 4.3, the project emissions and leakage emissions for this project activity are nil. Hence, ex-ante calculation of emission reductions is equal to ex-ante calculation of baseline emissions as project emissions and leakage are nil.

Hence,  $ER_y = BE_y$

As calculated in Section 4.2, baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

The electricity generated will depend on the installed WEG capacity. The installed capacity will change for the first crediting period, and will increase progressively as additional WEGs are installed throughout the first year. After the first crediting, the installed capacity will remain constant. Accordingly, the emission reductions for the first crediting period will be less than the emission reductions calculated for the subsequent periods.

The VCUs for the crediting period are summarized in the table below.

<b>Period</b>	<b>VCUs (tonnes of CO<sub>2</sub>e)</b>
Year 1	<b>49,161</b>
Year 2	<b>81,947</b>
Year 3	<b>81,947</b>
Year 4	<b>81,947</b>
Year 5	<b>81,947</b>
Year 6	<b>81,947</b>
Year 7	<b>81,947</b>
Year 8	<b>81,947</b>
Year 9	<b>81,947</b>
Year 10	<b>81,947</b>
<b>Total</b>	<b>786,686</b>

#### **4 Environmental Impact:**

As per the Schedule 1 of the EIA notification dated 14th September 2006 (<http://envfor.nic.in/legis/eia/eia-2006.htm>), given by the Ministry of Environment and

Forests (Government of India) under the Environment (Protection) Act 1986, EIA is not a regulatory requirement in India for wind energy projects.

Thus the project activity doesn't fall under the list of activities requiring EIA. The project activity will not involve any negative environmental impacts, as the WEGs are installed for generation of power using wind which is a clean source of energy.

**5 Stakeholder's comments:**

The local stakeholder consultation meeting has been conducted on 24<sup>th</sup> February 2010 at Gadag, Hassan & Chitradurga in Karnataka and in Tamil Nadu. The minutes of meeting has been provided to the DOE for validation.

**6 Schedule:**

The Schedule of project activities is given in **Annexure-4**. The project activity will implement monthly monitoring as well as reporting for monitoring of electricity exported, imported from the grid and calculation of net electricity supplied to the respective Grid Substation.

**7 Ownership:**

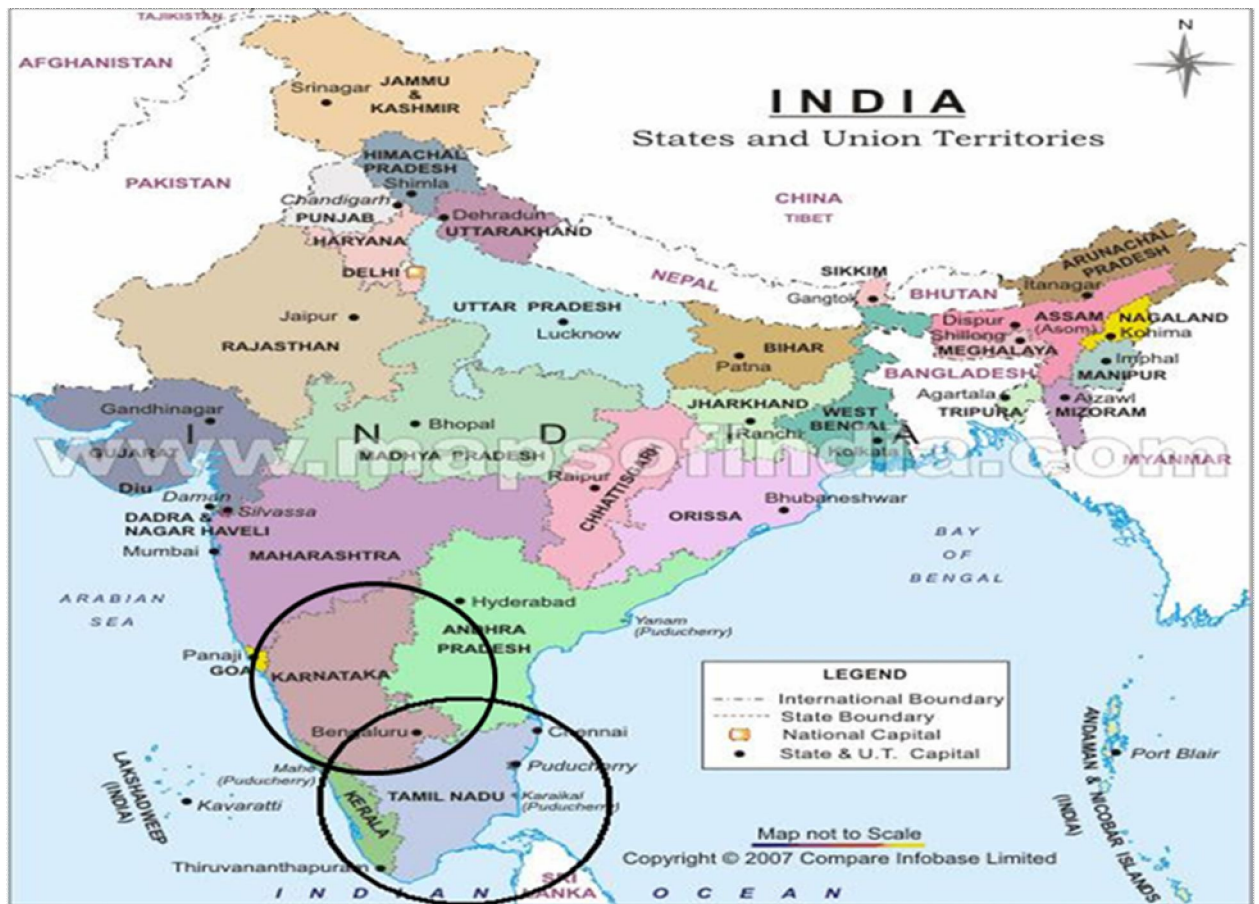
**7.1 Proof of Title:**

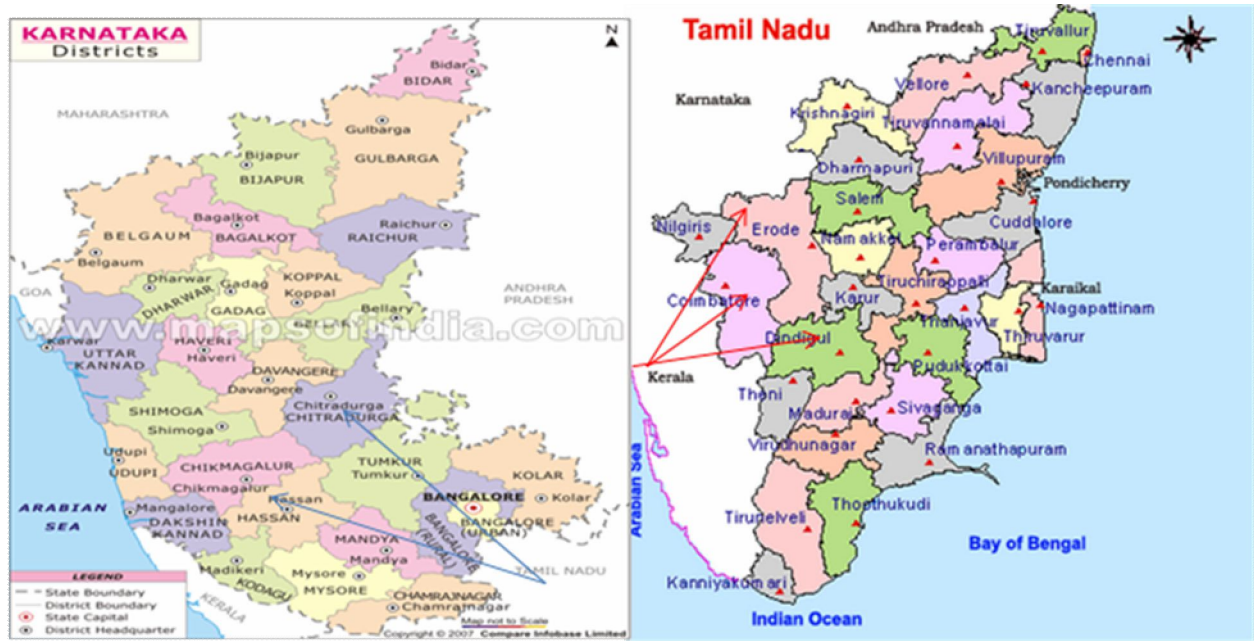
The project activity consists of two investors namely Super Wind Project Ltd and Simran Wind Project Ltd. Simran is the lead project proponent carrying out VCS validation and verification activities.

**7.2 Projects that reduce GHG emissions from activities that participate in an emissions trading program (if applicable):**

As of now, the project activity is not registered under any other GHG program.

## Annexure 1: Location Map





Project site locations

## Annexure-2: Baseline Information

The Operating Margin data for the most recent three years and the Build Margin data for the Southern Electricity Grid as published in the CEA database Version 04 are as follows:

### Simple Operating Margin

	tCO <sub>2</sub> e/MWh
Simple Operating Margin - 2006-07	0.9991
Simple Operating Margin - 2007-08	0.9906
Simple Operating Margin – 2008-09	0.9729
Weighted average of Operating Margin - Last three years	0.9871

### Build Margin

	tCO <sub>2</sub> e/MWh
Build Margin for the year 2007-08	0.8179

### Combined Margin calculations

	Weights	tCO <sub>2</sub> e/MWh
Operating Margin	0.75	0.9871
Build Margin	0.25	0.8179
<b>Combined Margin</b>		<b>0.9448</b>

Detailed information on calculation of Operating Margin Emission Factor and Build Margin Emission Factor is available at [www.cea.nic.in](http://www.cea.nic.in).

**Annexure 3: Project Details**

<b>S. No</b>	<b>Name of Investors</b>	<b>WEG ID No.</b>	<b>HT SC</b>
<b>1</b>	Simran Wind Project Private Limited	E767	D 171
<b>2</b>		E777	D 156
<b>3</b>		E778	D 170
<b>4</b>		E779	D 155
<b>5</b>		E780	D 154
<b>6</b>		E781	D 157
<b>7</b>		E782	D 158
<b>8</b>		E797	765
<b>9</b>		E86	754
<b>10</b>		G-557	D 146

<b>11</b>		G-970	1529
<b>12</b>		Q-48	708
<b>13</b>		Q-51	707
<b>14</b>		Q-199	1533
<b>15</b>		Q-220	1535
<b>16</b>		Q-394	1525
<b>17</b>		H-29	NA
<b>18</b>		H-34	NA
<b>19</b>		K-75	NA
<b>20</b>		K-76	NA
<b>21</b>	Super Wind Project	K-342	NA
<b>22</b>	Private Limited	K-345	NA
<b>23</b>		K-346	NA

<b>24</b>		K-347	NA
<b>25</b>		K-350	NA
<b>26</b>		K-69	NA
<b>27</b>		K-70	NA
<b>28</b>		K-71	NA



**Annexure 4**

SI NO.	Customer Name	EB Substation	Latitude			Longitude			UIN
			Deg	Minutes	Second	Deg	Minutes	Second	
1	Simran Wind Project Pvt Ltd	Muthunayakanpatti	77	27	25.4	10	34	20.1	E767
2		Muthunayakanpatti	77	28	08.8	10	34	24.7	E777
3		Muthunayakanpatti	77	27	59.7	10	34	15.8	E778
4		Muthunayakanpatti	77	28	00.9	10	33	43.3	E779
5		Muthunayakanpatti	77	27	36.8	10	33	21.9	E780
6		Muthunayakanpatti	77	27	53.2	10	34	32.8	E781
7		Muthunayakanpatti	77	27	40.3	10	33	42.6	E782

<b>8</b>		Pongalur	77	23	46.7	10	55	41.8	E797
<b>9</b>		Pongalur	77	22	21.4	10	56	14.1	E86
<b>10</b>		Thalaiyuth	77	24	22.6	10	33	10.5	G-557
<b>11</b>		Palappampatti	77	18	27.7	10	33	00.7	G-970
<b>12</b>		Elavanthy	77	20	21.3	10	55	19.8	Q-48
<b>13</b>		Elavanthy	77	21	20.4	10	55	27.6	Q-51
<b>14</b>		Kundadam	77	26	05.6	10	49	48.7	Q-199
<b>15</b>		Kundadam	77	26	06.9	10	48	15.3	Q-220
<b>16</b>		Kundadam	77	26	30.2	10	48	5.2	Q-394
<b>17</b>		Nittur	76	07	726	13	11	681	H-29
<b>18</b>		Nittur	76	08	096	13	12	399	H-34

<b>19</b>		Elkurnahalli							K-75
<b>20</b>		Elkurnahalli	76	26	23.7	14	05	20.5	K-76
<b>21</b>	Super Wind Project Pvt Ltd	Bagewadi	75	45	24.3	15	06	16.7	K-342
<b>22</b>		Bagewadi	75	47	35.8	15	05	7.8	K-345
<b>23</b>		Bagewadi	75	47	41.7	15	05	1.9	K-346
<b>24</b>		Bagewadi	75	47	47.3	15	04	55.1	K-347
<b>25</b>		Bagewadi	75	48	06.4	15	04	31.9	K-350
<b>26</b>		Elkurnahalli	76	27	7.7	14	05	12	K-69
<b>27</b>		Elkurnahalli	76	27	9.5	14	05	04	K-70

28		Elkurnahalli	76	27	10	14	04	56.3	K-71
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*Annexure 5: Schedule of activities*

<b>VCS (Super)</b>							
<b>Sl.No</b>	<b>Loc. No</b>	<b>MW</b>	<b>Commissioning date</b>	<b>Site</b>	<b>District</b>	<b>PO DATE</b>	<b>PPA DATE</b>
<b>KARNATAKA</b>							
1	K342	1.50	31-Dec-08	Mallikarjunpur	Gadag	29.08.07	18.05.09
2	K345	1.50	31-Dec-08	Jalwadgi	Gadag	29.08.07	30.05.09
3	K346	1.50	30-Sep-08	Jalwadgi	Gadag	29.08.07	30.05.09
4	K347	1.50	31-Dec-08	Jalwadgi	Gadag	29.08.07	18.05.09
5	K350	1.50	30-Sep-08	Jalwadgi	Gadag	29.08.07	18.05.09
6	K69	1.50	30-Sep-08	Elkurnahalli	Chitradurga	29.08.07	25.07.09
7	K70	1.50	30-Sep-08	Elkurnahalli	Chitradurga	29.08.07	25.07.09
8	K71	1.50	30-Sep-08	Elkurnahalli	Chitradurga	29.08.07	25.07.09

<b>VCS (Simran)</b>							
<b>Sl.No</b>	<b>Loc. No</b>	<b>MW</b>	<b>Commissioning date</b>	<b>Site</b>	<b>District</b>	<b>PO DATE</b>	<b>PPA DATE</b>
<b>TAMILNADU</b>							
1	E767	0.60	30-Sep-08	Kolumangondan	Dindigul	18.05.2007	16-Nov-08
2	E777	0.60	28-Jul-08	Kolumangondan	Dindigul	18.05.2007	28-Jul-08
3	E778	0.60	30-Sep-08	Kovilammalayam	Dindigul	18.05.2007	16-Nov-08
4	E779	0.60	28-Jul-08	Kovilammalayam	Dindigul	07.08.2007	28-Jul-08
5	E780	0.60	28-Jul-08	Kovilammalayam	Dindigul	07.08.2007	28-Jul-08
6	E781	0.60	28-Jul-08	Kovilammalayam	Dindigul	07.08.2007	28-Jul-08
7	E782	0.60	5-Aug-08	Kovilammalayam	Dindigul	18.05.2007	5-Aug-08
8	E797	0.60	28-Sep-08	Kattur	Coimbatore	18.05.2007	17-Nov-08
9	E86	1.50	1-Sep-08	Kattur	Coimbatore	07.08.2007	1-Sep-08
10	G-557	0.60	31-Mar-08	Midapadi	Dindigul	18.05.2007	31-Mar-08
11	G-970	1.50	31-Mar-08	Kannamanaickanur	Coimbatore	07.08.2007	31-Mar-08
12	Q48	1.50	30-Mar-08	V.Kallipalayam	Coimbatore	07.08.2007	30-Mar-08
13	Q51	1.50	31-Mar-08	V.Kallipalayam	Coimbatore	07.08.2007	30-Mar-08
14	Q199	1.50	31-Mar-08	Kundadam	Erode	07.08.2007	30-Mar-08
15	Q220	1.50	31-Mar-08	Kethairev	Erode	07.08.2007	31-Mar-08
16	Q394	1.50	30-Mar-08	Kethairev	Erode	07.08.2007	29-Mar-08
<b>KARNATAKA</b>							
1	H29	1.5	30-Sep-08	Koppala halli	Hassan	25.08.2007	12-Aug-09
2	H34	1.5	30-Sep-08	Koppalahalli	Hassan	25.08.2007	12-Aug-09
3	K75	1.5	31-Dec-08	Elkurnahalli	Chitradurga	25.08.2007	25-Jul-09
4	K76	1.5	5-Feb-09	Elkurnahalli	Chitadurga	25.08.2007	25-Jul-09